COAL AGE

Volume 13 NEW YORK, MAY 4, 1918 Number 18

Hope Dawns

By FLOYD W. PARSONS

FOUR weeks ago there was a serious falling off in coal production. The outlook was dark. The following week, however, there was no "Liberty Loan" holiday and no "Mitchell" day, so the miners got back on the job and output increased 12 per cent. The next week output increased 4 per cent., and last week it showed a further increase of 5 per cent.

If the bituminous output of the last week in April—which was close to 12 million tons—is maintained, we will have a fighting chance to get across this year with our war and industrial programs. If an additional half million tons can be added to this most recent weekly output, the Nation will be out of the woods, and the fuel problem will be largely solved.

Notwithstanding the Railroad Administration's picayune policy of abolishing its statistical department on the plea of economy, the work of gathering figures of daily and weekly freight shipments will likely be continued at the expense of another Government department, whose conception of its duty does not begin and end with the production of favorable net earnings.

Little by little the people of the United States will force home the conviction that the present purpose of our Government is to win the war quickly. The President will be backed up in such a stand, and he will frown on those who persist in their adherence to certain practices and principles of economy that were fine in times of peace, but are false in wartime. What do we care if the railroads lose a half billion dollars under Government control, if thereby they are operated so effectively for war service that the conflict is shortened and American youth is conserved. This is no time to value lives in a measure of dollars.

The people have a right to know what is being done. If a statement of results reflects on someone, let it be so—no good is accomplished by hiding the truth. On the other hand, we are reaching a point where our industries must change. The man making scissors must manufacture only half as many, and must substitute trench knives or surgical instruments or rifle parts to make up for his curtailment. Our average American wants to know why he can't do business as usual, and the only way to make the point clear is to let him know the truth about the necessities of the situation, excluding only secret information of military value.

A greater accomplishment than winning an important battle in France was the creation of the President's War Cabinet. No longer can one department of the Government profit at the expense of another. No longer can any one branch of service extend itself out of all proportion to other coöperative lines. No longer will it be possible to locate new war plants, and certainly not peace industries, in regions where output is already limited by inadequate railroad gateways.

Back of the whole problem is fuel. More and more it will become evident that the coal mines must have a full car supply. Already it has been determined by the railroad administration that 50,000 of the 100,000 cars to be ordered immediately shall be coal cars. More than 1000 locomotives have been added to the Nation's transportation equipment since the first of this year. Two hundred and fifty of these locomotives were built for Russia; 100 were built for France and the remainder were in fulfillment of domestic orders. Such a helpful contribution to a serious situation is noteworthy and augurs well for future months.

The Railroad Administration appears confident, and although its optimism seems premature, we hope it will be justified by subsequent developments. Mr. McAdoo will be back in Washington next week, and that will mean the ending of the railroad-fuel controversy. This will undoubtedly bring a blessing in the form of equitable car distribution. However, this correction of a long-standing evil will likely come at the cost of a flat reduction in the price of all bituminous coal. If, added to this outcome, there also result adjustments of price inequalities that now exist in certain localities, of which Colorado is a good example, the coal industry will then at least know where it stands; and both producer and consumer can commence to do business with uncertainties removed.

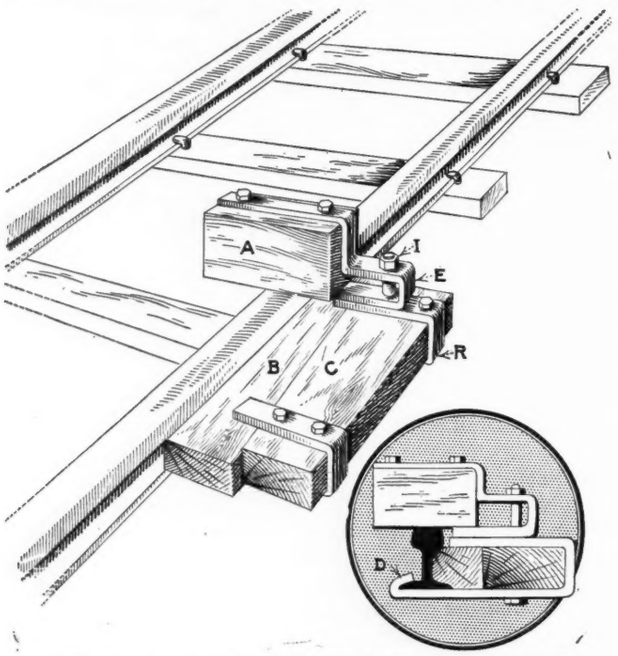
IDEAS AND SUGGESTIONS

Safety Block for Use Near the Face

BY J. REAY
Seanor, Penn.

The accompanying illustration shows a safety block, for use in coal mines, in rooms or on heading tracks, when going to the rise. It is simple to make and to use, and easy to move forward when this is required.

The block is made as follows: *C* is a plank 2 in. or more in thickness, according to the size of the rail used.



THE SAFETY RAIL BLOCK WEDGED TO THE RAIL

This plank is cut to make the wedge *B*. The straps *R* extend several inches over this wedge to hold it firmly in place. These straps *R* go under the plank and extend beyond it to the point *D*, where they are turned back so that they grasp and fit neatly the flange of the rail. When the block is put in place the wedge *B* is driven firmly against the rail. *A* is the block proper, which is made of a piece of 4 x 4-in. timber fastened to the strap *E*, through which a bolt is passed at *I*, thus allowing the block to swing as if on a hinge.

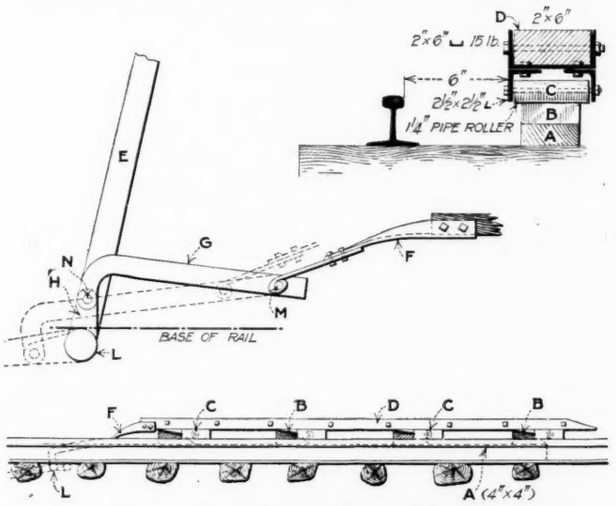
Readily Constructed Mine Car Retarder

At the Franklin colliery of the Lehigh Valley Coal Co., near Wilkes-Barre, Penn., there are a number of ingenious contrivances due to the foresight and energy of the outside foreman, James Piatt. Among such devices are two types of car retarders. One is in operation at the tower hoist of the breaker and the other is placed near the head of an outside slope near the breaker.

The former retarder handles the heavy work incident to the control of loaded trips at the foot of the car hoist; the latter device slows down more gradually the short trips of cars as they come over the knuckle of the slope.

The accompanying illustration shows the construction of the retarder at the head of the slope in question. Its operation is simple, and the spragger can readily be made at the colliery shop. Its construction is as follows: A 4 x 4-in. or a 4 x 6-in. timber (*A*) about 16 ft. long is drift-bolted to the track ties, leaving about 4 to 6 in. clearance from one rail—at the side of the track most easy to operate the device. On this foundation, at intervals, are placed the blocks *B*, so shaped as to form inclines on which the rollers *C* may run and thus raise the 2 x 6-in. timber *D*. This timber *D* constitutes the active member of the retarder, which rises when the lever *E* is thrown forward. As the timber *E* rises, the top engages the mine car journal and tends to lift the car. Thus friction gradually stops the car.

As to further details of the construction and operation of the retarder: The timber *D* is held in a 2 x 6-in., 15-lb. channel by horizontal bolts. At regular intervals, on the under side of this channel, are rollers journaled in 2½ x 2½-in. 8-lb. angles, which are bolted



DETAILS OF MINE CAR RETARDER

to the channel as shown in the illustration. The blocks *B* are shod with sheet iron and act as inclined planes for the rollers *C*.

The forward end of the timber *D* and its inclosing channel is connected with the hand lever *E* by the iron *F*, the bent link *G* and the short lever *H*. The short lever is mounted on the axle *L*, to which is attached the hand lever *E*. The extreme forward position of the lever *E* and connecting parts are shown dotted; the short lever is now on dead center and tends to resist backward movement until thrown back by the hand lever. The irons *F* and *G* are pivoted at *M* and *N* to permit of free motion.

The majority of the mine cars at the Franklin col-

liery lend themselves nicely to this method of spragging. The exceptions are a certain type of car having bolt heads on the under side of the journal. This bolt rips up the surface of the 2 x 6-in. timber as the car slides over the wood surface of the retarder—a plea for further standardization of equipment.

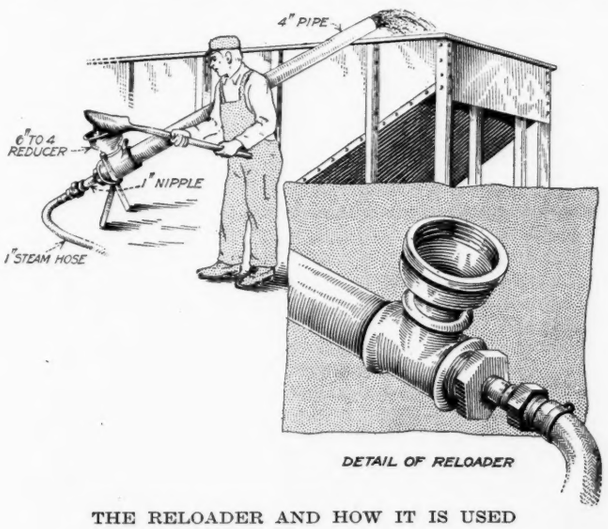
A Successful Reloader

By R. L. Sinyard
Summit Hill, Penn.

Truly, necessity is the mother of invention. The arrangement shown in the accompanying illustration resulted from the scarcity of labor and the ingenuity of the power-house foreman.

Prior to the last suspension, an anthracite coal company had quite a number of cars of power coal dumped at a point convenient to the boiler rooms, to be used in case of a strike. The favorable result of negotiations between miners and operators, however, involved the reloading of this coal into the railroad cars that it might be transported to the boiler rooms. Now as the coal had been unloaded on a slope it represented considerable labor to reload it, and here is where the power-house foreman solved the problem.

Securing a length of 4-in. pipe, long enough to reach from the coal pile over the side of the car, he fastened a tee to one end and screwed a 6 x 4-in. reducer in the outlet opening, reducing the other run opening of the tee with a bushing to 1 in. A nipple long enough to go halfway through the tee was screwed inside, while



THE RELOADER AND HOW IT IS USED

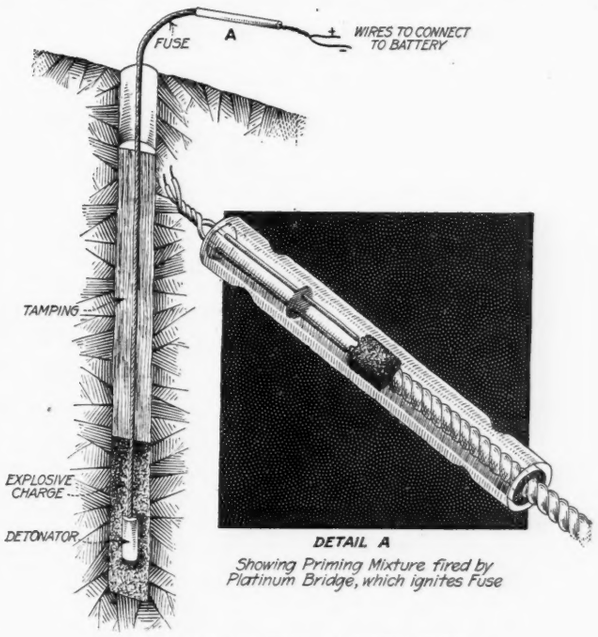
the outside was coupled up to take a 1-in. steam hose which was attached to a steam line run from the power plant.

The result surpassed all expectations. The steam end of the contraption was placed in the coal pile and two men shoveled the fine coal into the reducer and the steam jet did the rest. As a part of the coal pile disappeared the pipe was merely moved and the coal shoveled into the open end. It was estimated that two men with this steam reloader equaled the work of 12 or 15 men shoveling it directly into the cars. In the course of a short time, comparatively speaking, the coal was reloaded.

Delayed Action Fuses

By M. Cranston
Pocahontas, Alberta

In reviewing some of the contributions on safety contained in *Coal Age*, I thought it might interest some of its readers, who follow shaft sinking, or rock work, as a profession to learn of the following safety device in blasting. The procedure here described was adopted,



DETAILS OF THE SAFETY FUSE

after the occurrence of a fatal accident, in the course of sinking the Lewis Merthyr Colliery shafts at Ogmore Vale, Wales.

Where a round of, say, 10 shots are to be fired simultaneously, with an electric battery, it sometimes happens that one or more of the shots misfires or does not detonate, and the person doing the firing has no means of knowing this, except by going down the shaft (if such is the character of the work) and making an inspection. Sometimes the unfired shot is covered under débris, which hides the fact of its failure to explode until possibly the detonator is struck with some tool, with fatal results.

In the method submitted the time fuse is used in charging, and each fuse is cut 2 in. longer than its predecessor, the ends being connected to electrical detonators, as shown in the accompanying illustration. The electrical detonators are consequently all ignited at the same time, the difference in time of detonation between each shot being caused by the unequal length of fuses. This enables the shotfirer to count each detonation and satisfy himself that all shots have gone off. This arrangement was a "delayed action fuse."

Soot burns very slowly in the furnace gases because the oxygen is greatly rarefied, the gases containing only a few per cent. of free oxygen; it burns rapidly in the bomb calorimeter or in mixture with potassium chlorate because it is surrounded with highly concentrated oxygen ready to combine with it.—*Bureau of Mines Bulletin No. 135.*

Handling Material and Supplies at Coal Mines

By R. M. MAGRAW
General Superintendent United States Fuel Co., Hiawatha, Utah

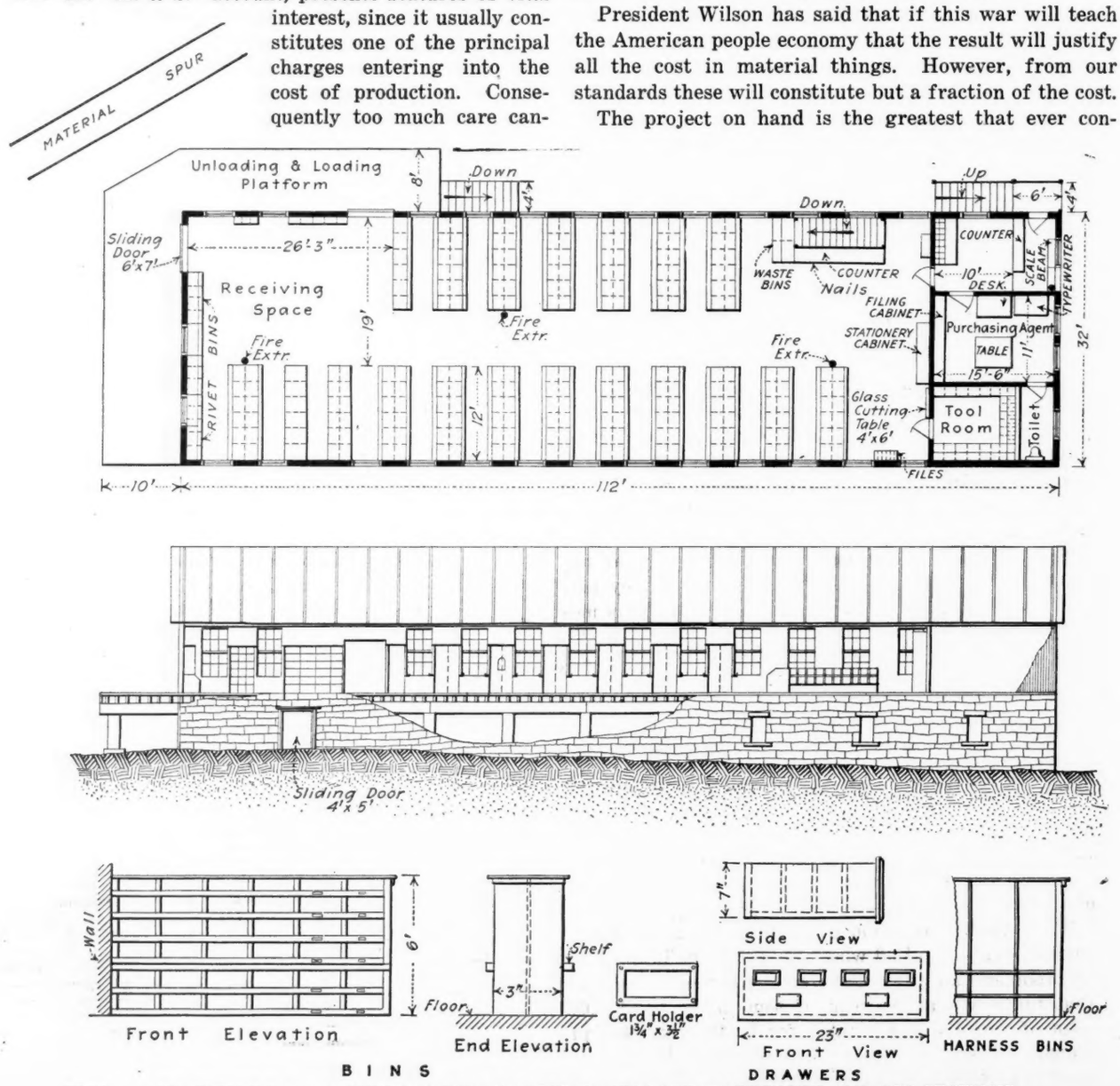
SYNOPSIS—*The cost of materials and supplies is an appreciable item in the total cost of producing coal. A centralized material storage wherein everything is kept strict account of is the only practical method of reducing so far as possible the expense for supplies and preventing either an excess stock or a scant one.*

TO THE up-to-date coal-mine official the material and supply account, or as it is usually abbreviated, the "M. & S." account, presents features of vital interest, since it usually constitutes one of the principal charges entering into the cost of production. Consequently too much care cannot be exercised in purchasing, storing and issuing the material required by the operations. The foregoing statements, always true, have not always been practiced; consequently many otherwise capable officials have been discredited and their companies have lost much in the way of invested capital, as well as efficiency, as the direct result of carelessness or ignorance in the handling of supplies.

Extravagance is to be deplored at any time, but at present it is a crime hard to condone, since in the final analysis it means the deprivation of the necessities of life or even life itself to someone, somewhere.

President Wilson has said that if this war will teach the American people economy that the result will justify all the cost in material things. However, from our standards these will constitute but a fraction of the cost.

The project on hand is the greatest that ever con-



FIGS. 1 AND DETAILS OF A CENTRALIZED MATERIAL STORAGE WAREHOUSE AND BIN SECTIONS

fronted us or any other people, and it is just as essential for those who stay at home to keep the wheels of industry moving smoothly and surely as it is for the men in the trenches to do that which we know they will do. Without our aid the others will make a useless sacrifice.

The wheels must not only run smoothly, but efficiently and economically; this latter term is used in its broader sense and is not meant to signify niggardliness. Wage increases have been necessary in practically all branches of industry, consequently the cost of production has risen in all lines, in many cases 100 per cent. or more, giving, if any specific excuse were necessary, an added argument in favor of economy.

Wages being fixed at coal mines, the only methods of reducing operating costs are by increasing the efficiency of the man-power employed and by the economical handling of supplies. It not being the purpose of this article to discuss the first of these methods, it may be passed over without further comment.

Many companies are deprived of the benefit of the latter method, due to false ideas of economy which prevent the erection of suitable storehouses; others with adequate housing facilities are handicapped by faulty interior arrangements; and still others fail through incomplete or careless accounting; and some through a combination of all three of these causes.

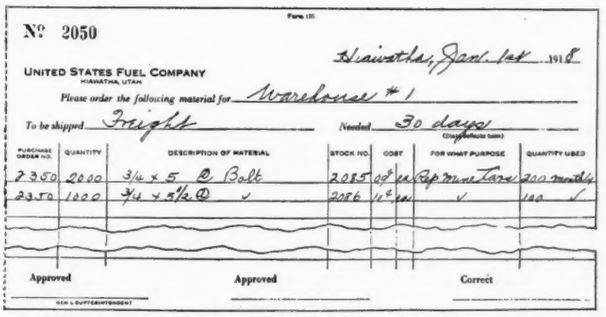
Few of the older generation of coal-mine superintendents had more than a perfunctory knowledge of accounting, consequently many of them looked with suspicion upon anything but the simplest forms and statements. This attitude was expressed succinctly by an oldtimer some years ago as follows: "They say figgers don't lie, but the bloody clark does." It is needless to say that the operations under this man's charge reflected his mental attitude.

At most small mines, and many of the larger ones, a few years ago, any abandoned shack, regardless of location or design, was considered as a satisfactory depository for whatever material absolutely had to be under cover. Consequently much time and no little material was lost, not to mention delays to the plant, through inability to locate repair parts that some one had mislaid.

The difficulties attending the maintenance of an adequate stock of supplies under conditions as they exist today are familiar to all. It is safe to say that most companies are carrying 100 per cent. more stock than they were two or three years ago, and it is also safe to say that unless warehouse facilities and accounting methods have kept pace with the increased stock much valuable time and material will be ultimately wasted through duplication of orders and failure to find material as and when it is needed.

The methods used by the United States Fuel Co. at its central warehouse at Hiawatha, Utah, while admittedly not perfect, are believed to embody features which may be of interest to many who are desirous of systematizing the handling of material.

The present warehouse building replaced several smaller structures, and when stock was finally got under one roof and an accurate inventory taken it was found that there was an overrun of something like $10,000, most of which was accounted for by the fact that previously no one had known just where to look for the stuff that was needed.



Nº 2050

Hiawatha, Jan. 1st 1918

UNITED STATES FUEL COMPANY
HIAWATHA, UTAH

Please order the following material for Warehouse #1

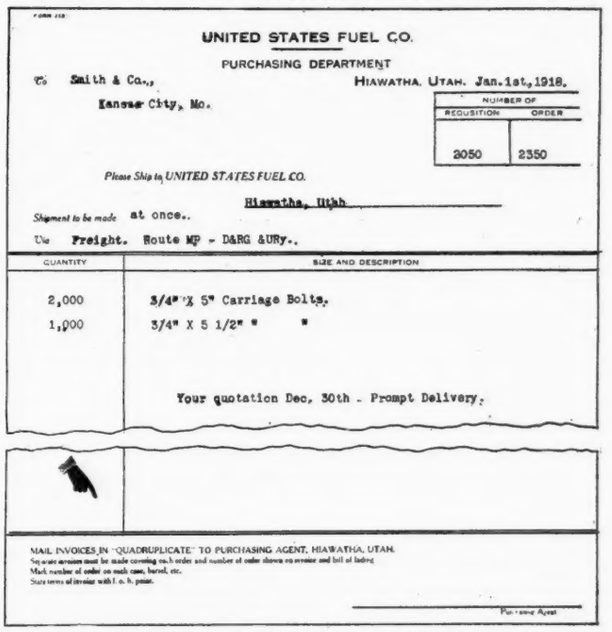
To be shipped Freight Needed 30 days

PURCHASE ORDER NO.	QUANTITY	DESCRIPTION OF MATERIAL	STOCK NO.	COST	FOR WHAT PURPOSE	QUANTITY USED
2350	2000	3/4 x 5 @ Bolt	2085	09¢ ea	Repairing Cars	200 monthly
2350	1000	3/4 x 5 1/2 @ ✓	2086	10¢ ea	✓	100 ✓

Approved Approved Correct

GEN'L SUPERINTENDENT

FIG. 3. FORM 195—REQUISITION FOR MATERIAL



UNITED STATES FUEL CO.

PURCHASING DEPARTMENT

To Smith & Co.,
Kansas City, Mo.

HIAWATHA, UTAH. Jan. 1st, 1918.

NUMBER OF REQUISITION	ORDER
2050	2350

Please Ship to UNITED STATES FUEL CO.
Hiawatha, Utah

Shipment to be made at once..

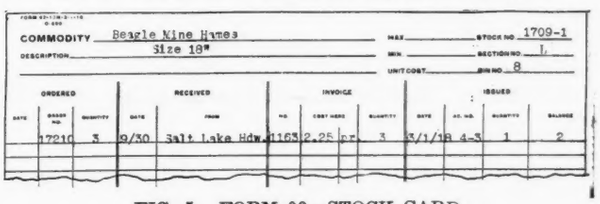
Via Freight. Route MP - D&RG &URy..

QUANTITY	SIZE AND DESCRIPTION
2,000	3/4" X 5" Carriage Bolts.
1,000	3/4" X 5 1/2" " "
	Your quotation Dec, 30th - Prompt Delivery.

MAIL INVOICES IN "QUADRUPLICATE" TO PURCHASING AGENT, HIAWATHA, UTAH.
Separate invoices must be made covering each order and number of order shown on invoice and bill of lading
Mark number of order on each case, barrel, etc.
State terms of invoice with f. o. b. point.

Purchasing Agent

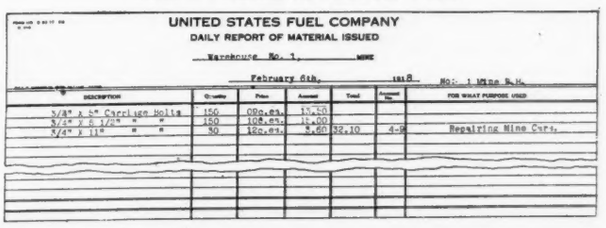
FIG. 4. FORM 213—CHECK ON GOODS RECEIVED



COMMODITY Beagle Nine Himes MAX STOCK NO. 1709-1
DESCRIPTION Size 18" MIN SECTION NO. 1.
UNIT COST BIN NO. 8

ORDERED DATE	ORDER NO.	QUANTITY	RECEIVED DATE	FROM	INVOICE NO.	COST HERE	QUANTITY	ISSUED DATE	AC. NO.	QUANTITY	BALANCE
	17210	3	9/30	Salt Lake Hdw.	1163	2.25 pr.	3	3/1/18	4-3	1	2

FIG. 5. FORM 92—STOCK CARD



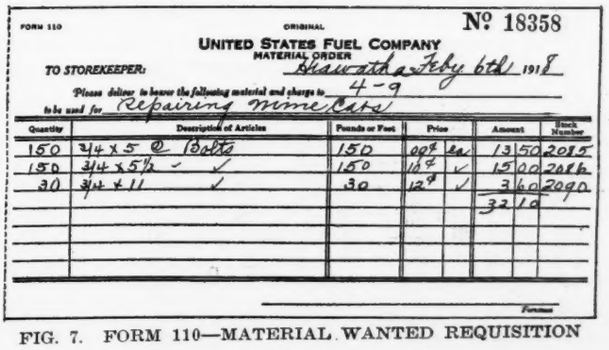
UNITED STATES FUEL COMPANY
DAILY REPORT OF MATERIAL ISSUED

Warehouse No. 1, MINE

February 6th, 1918 No: 1 Mine B.H.

DESCRIPTION	Quantity	Price	Amount	Total	Account No.	FOR WHAT PURPOSE USED
3/4" x 5" Carriage Bolts	150	09¢ ea.	13.50			
3/4" x 5 1/2" " "	150	10¢ ea.	15.00			
3/4" x 11" " "	30	12¢ ea.	3.60	32.10	4-3	Repairing Mine Cars.

FIG. 6. FORM 148—DAILY REPORT OF MATERIAL ISSUED



FORM 110 ORIGINAL Nº 18358

UNITED STATES FUEL COMPANY
MATERIAL ORDER

TO STOREKEEPER: Hiawatha, Feby 6th 1918

Please deliver to bearer the following material and charge to 4-9

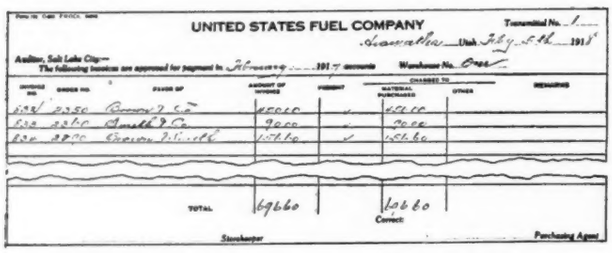
to be used for Repairing Mine Cars

Quantity	Description of Articles	Pounds or Feet	Price		Amount	Stock Number
150	3/4 x 5 @ Bolts	150	09¢	ea	13 50	2015
150	3/4 x 5 1/2 " ✓	150	10¢	✓	15 00	2016
30	3/4 x 11 ✓	30	12¢	✓	3 60	2090
					32 10	

Foreman

FIG. 7. FORM 110—MATERIAL WANTED REQUISITION

In demolishing a small shack, after all material had apparently been removed therefrom, the carpenter was much surprised when he pulled a board loose from the studding to be met with a rain of porcelain cleats and knob insulators, which had been boarded up between these uprights. The net result was about two barrels


UNITED STATES FUEL COMPANY

Auditor, Salt Lake City—

The following invoices are approved for payment in ... 191 7 accounts

VOUCHER NO.	CHECK NO.	PAYEE OF INVOICE	AMOUNT OF INVOICE	DISCOUNT	CHARGED TO MATERIAL PURCHASED	CHARGED TO OTHER	REMARKS
1021	2350	Pomeroy & Co.	47.10		47.10		
1022	2351	Arnold & Co.	9.00		9.00		
1023	2352	Edison Electric	153.60		153.60		
		TOTAL	69.60		69.60		

Correct:

Storekeeper Purchasing Agent

FIG. 8. FORM 192—FOR USE OF AUDITOR

full of insulators. Upon being asked as to how they came there, the mechanic in charge stated that he did not need them so had dumped them behind the partition to get them out of the way. Investigation disclosed the fact that the company was purchasing the same class of material right along, but no one in authority had known of this cache.

At another place several hundred twist drills were discovered which someone had ordered as a result of inexperience and which were found to be unsuited to the drill arbors in use. Consequently they were stored away for years, although they represented a total cost of several hundred dollars, and new arbors to fit the drill shanks could have been made or purchased for a few dollars apiece.

Examples similar to these could be cited indefinitely, and no doubt many of the readers of *Coal Age* have had personal experiences along the same lines.

The warehouse is built close to a spur railroad track, so that material can be handled from cars to platform without difficulty. The basement extends under the full length of the building, the doors being so arranged that incoming and outgoing material is handled with a minimum of effort.

Figs. 1 and 2 show the detailed arrangement of the main floor, which gives a maximum of storage room with a minimum floor space. The basement is used almost entirely for the storage of heavy articles, such as bare and insulated copper wire and cable, wire rope, nails, spikes, heavy fittings, spare machinery parts, etc. Iron and mild steel for use at the shops are stored in a rack between the material house and central shop. Pipe is also stored in a special rack outside of the building.

All tool steel and small tools carried in stock are kept in the warehouse. However, the tools are stored in a toolroom under separate lock from the main storeroom.

Lumber, ties and rails are stored in the yard surrounding the shop and material house. Hay and grain, of course, are stored at the various mine barns, a report covering quantities used being rendered by the barn boss at the end of each month. An approximate inventory of barn supplies is taken every three months by a man from the material house as a check against the barn boss' report, and an actual inventory is taken at the regular inventory period.

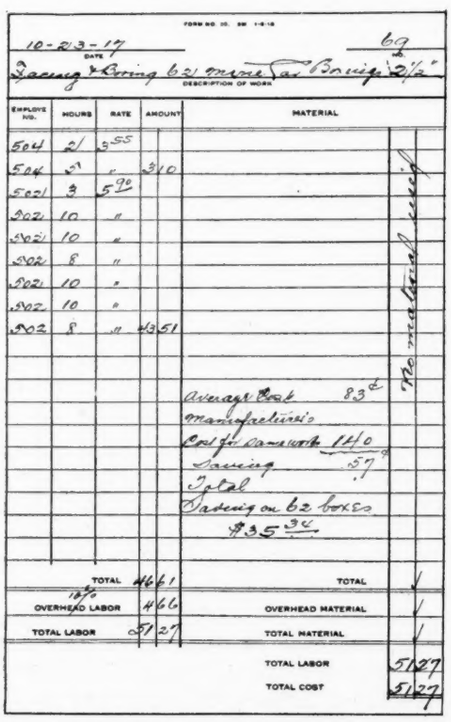
Separate buildings are maintained for storage of cement, lime, sand, oil, etc. Little oil is used as compared with former times, because all power is purchased, power plants having been dismantled and sold, thus eliminating the use of cylinder oil almost entirely. A hard grease is used for lubricating mine cars and consequently the demand for black oil is practically *nil*. What little oil is used is stored in iron barrels to prevent waste, but were the consumption of oil greater storage tanks would be essential.

A small warehouse, 20 x 40 ft., was moved to the material yard where it is utilized to store second-hand stuff which is of too great value to be scrapped. This building is equipped with bins similar to those in use in the larger warehouse, and material is sorted and stored until it is required.

The central warehouse carries the surplus stock for all mines and also takes the place of an individual warehouse for the Black Hawk mine. A limited stock of necessary repair parts and supplies is carried at the other mines in buildings arranged similarly to the larger establishment.

It was found, however, that by concentrating the bulk of the stock in one place it could be reduced from 30 to 40 per cent., for where from $80,000 to $90,000 was carried at one time, stock was reduced to between $50,000 and $60,000 without in any way interfering with the operations.

At the present time, owing to war conditions, stock has been increased until it has reached a total of over $100,000. The increase has been due, not only to the necessity of purchasing in larger quantities as a pre-


10-2-3-17 DATE — 69

Sawing & Boring 62 mine Car Bolts 2½"

DESCRIPTION OF WORK

EMPLOY'S NO.	HOURS	RATE	AMOUNT	MATERIAL
504	2	3.55		
504	2	"	3.40	
502	3	5.92		
502	10	"		
502	10	"		
502	8	"		
502	10	"		
502	10	"		
502	8	"	4.51	
				Average Cost 8.3¢
				manufacturing
				Cost for same work 11¢
				Saving 5.7¢
				Total
				Saving on 62 boxes
				$3.54
	TOTAL		46.61	TOTAL
	OVERHEAD LABOR 10%		4.66	OVERHEAD MATERIAL
	TOTAL LABOR		51.27	TOTAL MATERIAL
				TOTAL LABOR 51.27
				TOTAL COST 51.27

No material used

FIG. 9. FORM 20—USED IN MACHINE SHOP

cautionary measure against delays of various kinds, but to the higher price of all classes of material, in many cases the increase being 100 per cent. or more.

Many companies having ample storage room fail to reap full benefit therefrom because of lax methods of storing and issuing the supplies as required. In cases

of this kind the approach of the inventory period is fraught with anxiety for the mine superintendent and the material clerk, and it is a safe guess that their fears are well founded.

The system adopted by the United States Fuel Co. probably does not embody any new features, and it undoubtedly is susceptible to improvement, but since it has been in vogue it has worked out satisfactorily from every standpoint. There has been no shortage at any inventory period, and the little extra labor involved in handling the stock properly and in making up the various reports is counterbalanced many times by the economies effected.

Form No. 195, Fig. 3, shows a requisition for material not in stock, or for addition to stock. This is to be made out as required by mine superintendents, or heads of departments, giving quantity, description and for what purpose used. The columns, purchase order number, stock number, cost and quantity used are filled in by the purchasing department as part of its record. The requisition is then submitted to the general superintendent for approval, and if it runs the gantlet successfully, an order is made out on form No. 213 (Fig. 4). The duplicate is stamped and filed to be used as a check when goods are received. All incoming goods are checked against invoice and order.

Comprehensive Stock Card Is Used

After goods have been checked and stored, information from invoice is entered on form No. 92 (Fig. 5), which shows commodity or name, description, size, etc., maximum and minimum number it is desired to carry in stock at one time, stock number, section number or letter and bin number, date ordered, order number, quantity ordered, date received, from whom received, invoice number, cost, quantity invoiced, date issued, cost sheet account number to which chargeable, quantity issued and balance on hand. It will be noted that no valuation is shown on card covering material issued, this information being shown on the daily report of material issued.

Bin sections, as shown in Fig. 2, are 3 x 12 x 6 ft., subdivided longitudinally in the center. The transverse subdivisions are movable, so that storage space can be adapted to different articles. Several sections are equipped with drawers which are subdivided for storage of small bolts, screws, and other repair parts for mining machines, motors, pumps, etc. One section had longitudinal subdivision and shelving left out entirely, substantial hooks being fastened to the transverse subdivision to be used for storing harness. Thus storage, equal to 36 lin.ft. of wall space, was secured at the expense of 36 sq.ft. of floor space.

Bin sections are alphabetically arranged, and each individual compartment is numbered. Thus the first section to the left opposite the stairway is A, the left-hand side being A-1 and the right A-2, The compartments on each side are numbered consecutively, and are denoted on cards as A-1-1, A-1-2, A-2-1, A-2-2, etc. Each subdivision is equipped with a brass card holder and small card, on which is typewritten the name and dimension of the article, if this is essential, and the stock number corresponding to the number carried on form No. 92 for that particular article.

When material is wanted from the warehouse, requisition for it is made out on form No. 110 (Fig. 7). This is signed by someone duly authorized, quantity and description of article only being given. This form is filled in in triplicate, the original being presented at the warehouse, duplicate sent to the mine superintendent's office and the triplicate kept for reference. Columns giving price, amount, stock number, etc., are for

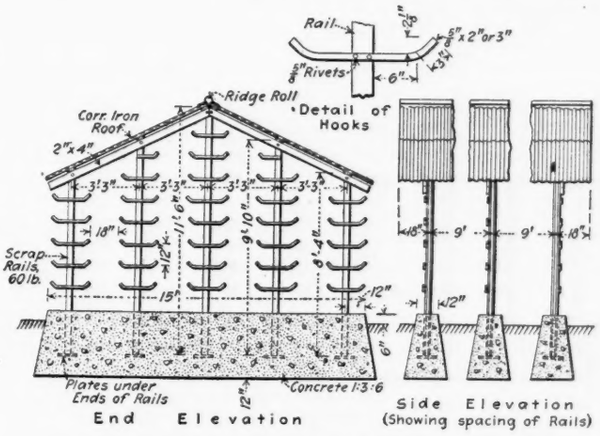


FIG. 10. STOCK RACK FOR BAR IRON AND PIPE

the convenience of the warehouse force. The requisition is presented at the warehouse, where the clerk refers to a card index, locates material by section letter and bin number, and issues the desired article with no loss of time or energy.

After issuing the requisitioned material the stock clerk enters the price and amount on the requisition, and at the end of each day all requisitions are tabulated on form No. 148 (Fig. 6), a report being made for each mine. This report is made out in triplicate, one copy for the mine superintendent, one for the auditor, and one for filing at the material house. The superintendent can see at the end of each day just what has been charged to his operations, and is thus in a position to govern his cost with no fear of a big charge coming in at the end of the month to upset his calculations.

The copy going to the auditor is checked as to calculations and total amount, and at the end of each month the total charge for each mine is computed, which figure must agree with those submitted by the supply department on a form, which is compiled from the daily reports and shows the total material charge for the month, subdivided according to cost sheet account numbers.

Account number 4 on the cost sheet is devoted to hauling, and has 19 sub-accounts. Consequently in charging the Beagle mine harness, shown on form No. 92, the clerk refers to cards, where he finds that this is chargeable to account 4, sub-account 1, or account hauling, sub-account harness and shoeing.

Forms 145-A and 145-B (not reproduced here) are the cost sheets used by the United States Fuel Co. Labor is charged direct from the payroll distribution sheet, which is somewhat similar to the form which is compiled from the daily reports. The voucher column is used to take care of indirect charges from the auditor's office, such as depreciation, power expense, etc.

Form No. 192 (Fig. 8) is used in transmitting invoices to the auditor, and shows the number of invoice,

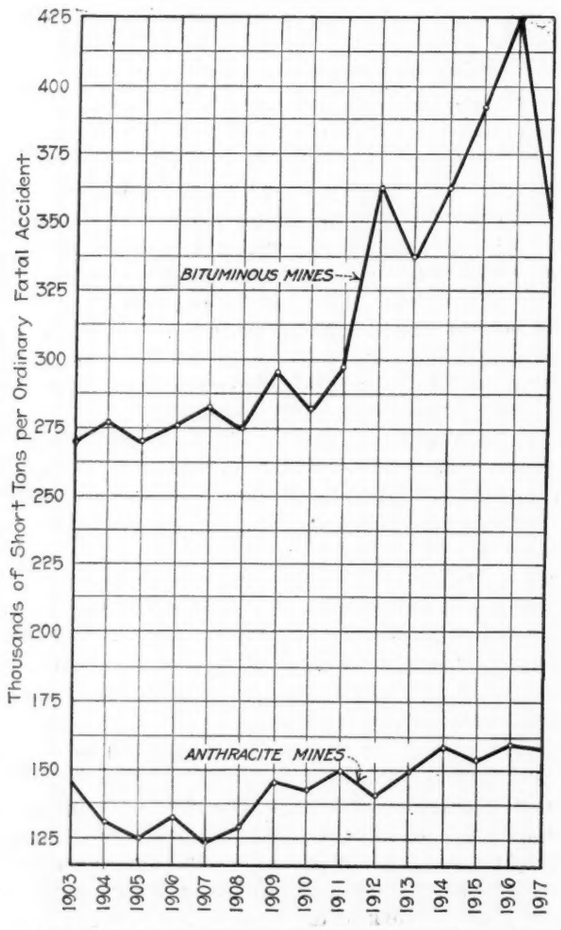
number of order, to whom invoice is in favor, the amount of invoice, amount of freight charges, whether amount was charged to material purchased or to some construction or other account direct.

The foregoing constitute all the reports or forms used in connection with the storehouse, with the exception of the monthly trial balance rendered to the auditor's office, which must agree with figures on general books and job order cards, Fig. 20, used in connection with the central machine shop. The machine shop is engaged extensively in manufacturing frogs, switch points, etc., for the several mines, also in finishing various castings and other materials purchased in the rough. These items are all carried in material stock until released by proper requisition, hence it is necessary to have exact cost of machine work in order to keep records clear.

The job order card shown herewith was copied from one turned in upon the completion of 62 mine-car boxings, which were bored and faced. The saving shown is well worth while, and is only one of the many items proving the economic value of a well-equipped shop and material house.

Fatality Rates in Pennsylvania Mines

The accompanying tables compiled by Dr. Downey, special deputy of the Department of Insurance of Pennsylvania, cover fifteen years of experience in the anthracite and bituminous mines of the state. It is gratifying to note that whereas in the first five-year period 131,000 tons of coal were produced in anthracite mines for an ordinary fatal accident, in the last five years the production per ordinary fatal accident has increased to 157,000 tons. The bituminous mines have shown an even greater increase in safety from ordinary, as opposed to catastrophic, accidents. Whereas 276,000 tons was formerly mined for one ordinary accident, now in the last five-year period there is an ordinary accident to every 370,000 tons of production. Thus the anthracite region has improved its record 20 per cent. and the bituminous region 34½ per cent.



A FATALITY CHART IN WHICH CATASTROPHIC ACCIDENTS DO NOT ENTER

FATALITY RATES IN PENNSYLVANIA ANTHRACITE MINING

Year	Production Short Tons	Fatal Accidents: All	Fatal Accidents: Catastrophe	Fatal Accidents: Ordinary	Thousand Tons Per Ordinary Fatal Accident
1903–1917	1,257,272,825	9,130	335	8,795	143
1908–1917	871,602,929	6,104	251	5,853	149
1913–1917	448,807,814	2,958	98	2,860	157
1917	88,933,305	581	21	560	159
1916	87,680,198	565	19	546	161
1915	89,377,706	588	13	575	155
1914	91,189,641	600	26	574	159
1913	91,626,964	624	19	605	151
1908–1912	422,795,115	3,146	153	2,993	141
1912	84,426,869	601	6	595	142
1911	90,917,176	699	87	612	149
1910	83,683,994	601	14	587	143
1909	80,223,833	567	17	550	146
1908	83,543,243	678	29	649	129
1903–1907	385,669,896	3,026	84	2,942	131
1907	86,056,412	708	14	694	124
1906	72,139,510	557	13	544	133
1905	78,647,020	644	22	622	126
1904	73,594,369	599	35	564	131
1903	75,232,585	518	0	518	.145

FATALITY RATES IN PENNSYLVANIA BITUMINOUS MINING

Year	Production, Short Tons	Fatal Accidents: All	Fatal Accidents: Catastrophe	Fatal Accidents: Ordinary	Thousand Tons Per Ordinary Fatal Accident
1903–1917	2,120,304,750	7,678	967	6,711	316
1908–1917	1,518,537,051	4,978	451	4,527	335
1913–1917	815,603,302	2,386	183	2,203	370
1917	170,209,231	496	14	482	353
1916	169,123,814	433	35	398	425
1915	157,420,068	449	37	412	393
1914	145,884,530	408	0	408	363
1913	172,965,659	600	97	503	337
1908–1912	702,933,749	2,592	268	2,324	302
1912	160,830,492	460	18	442	364
1911	142,189,329	515	38	477	298
1910	148,770,858	539	12	527	282
1909	136,205,695	506	46	460	296
1908	114,937,375	572	154	418	275
1903–1907	601,767,699	2,700	516	2,184	276
1907	149,559,047	806	278	528	283
1906	129,532,989	477	7	470	276
1905	119,361,514	479	37	442	270
1904	99,600,167	536	177	359	277
1903	103,713,982	402	17	385	269

While the catastrophic hazards in anthracite mines seem but little changed in the fifteen year period, the bituminous mines have clearly made progress. There were 516 catastrophic accidents in 1903-1907, whereas despite the large increase in production there were only 183 in 1913-1917. However, the general turn for the worse in the last year in all except the catastrophic bituminous figures is a real occasion for shame and regret after a season of such satisfactory progress. The chart is furnished as by Rush N. Hosler, supervisor of coal mine schedule rating at Harrisburg.

In general, it may be said that the more complex a molecule of combustible is, the slower is its combustion in any given concentration of oxygen.—*Bureau of Mines Bulletin No. 135.*

The Value of an Engineer to the Operator

Instead of Being Regarded as an Added Burden or a Necessary Evil, the Mine Engineer Should Be Considered One of the Valuable Assets of the Company

BY "INSPECTOR"
Windber, Penn.

IT IS frequently difficult to convince the operator of a small mine or mines, and sometimes of a larger mine, of the importance of regular and accurate surveys of the mine workings. He usually considers the engineering only a bill of expense with no returns whatever. In other words, the cost of mining, haulage, power and other items is necessary to secure an income, but the engineer collects the money (usually about the time a new survey is required) and the operator receives nothing in return except a map which has no market value.

Article 2 of the bituminous mine law, approved June 11, 1911, requires that the operator or superintendent of any bituminous coal mine shall make or cause to be made by a competent mine engineer or surveyor an accurate map of the mine, on a scale of not less than 200 ft. to the inch, which map shall give the following information:

First, all the openings, excavations, shafts, slopes, drifts, tunnels, planes, main entries, cross-entries, rooms and the name and number of each.

Second, an accurate delineation of the boundary lines between the mine and adjoining mines or coal lands; the relation and proximity of the workings of the mine to all adjoining mines or coal lands; and also the direction of the air currents when requested by the mine inspector.

Third, the elevation above or below mean tide at Sandy Hook of the top and bottom of each shaft and slope, of all drifts, tunnels, planes, and of the face of entries, as found at each semi-annual survey, and in rooms and entries adjacent to boundary lines between such mine and any adjoining mine or mines at points not more than 300 ft. apart; also the number of last survey station and the date of such survey on the entry; the location of streams, rivers, lakes, dams or any other bodies of water on the surface, with their elevations plainly and accurately marked; the location and elevation of any body of water dammed or held back in any portion of the mine, giving the true area of said body of water, unless inaccessible before the passage of this act; the location of all boreholes penetrating the coal strata, and the location of all oil and gas wells, and all oil and gas pipe lines.

The map shall show such portions of any adjoining mine or mines which may be within 300 ft. of the boundary lines between the two properties. This map shall be brought up to date at least once every six months.

A plan shall be kept at the mine showing all stationary electrical apparatus in connection with the mine electrical system, including permanent cables, conductors, lights, switches and trolley lines. The scale of this plan shall not be less than 200 ft. per inch; shall state thereon the capacity in horsepower of each motor, in kilowatts of each generator or transformer, and the nature of its duty. This plan shall be corrected as often as necessary to keep it up to date, at intervals not exceeding six months.

In addition to these requirements a mine map should show all rock faults, clay veins, areas of bad roof, measurements of the coal seam at various points and projections of future development; all worked out and abandoned areas; all buildings, public roads, railroads, sidings, tipple and mine buildings, and the outcrop of the coal seam where known; preferably on a scale of 100 ft. per inch as this is the scale preferred by most mine foremen, owing to the ease with which it can be read and full data shown on it. A map drawn to a smaller scale is both harder to make and read. Many companies also have a map drawn to the scale of 400 ft. to the inch, showing all property lines, mine workings, contours and any other available information.

COMPREHENSIVE MINE MAP GREAT AID

If a mine foreman is furnished with maps showing the foregoing data, he is able to lay out his work systematically, keep informed as to the proximity of the mine workings to boundary lines and adjoining mine workings which may contain dangerous accumulations of water and gas, prevent any encroachment on other properties which may result in expensive litigation and settlements of damage claims, avoid the loss of coal caused by not driving the entire distance to the boundary lines, and avoid the loss of coal due to squeezes and creeps caused by cutting into other places not shown or not accurately shown on the mine map.

Some of the smaller companies, which cannot afford to employ an efficient engineer regularly, have their mines surveyed semi-annually merely to comply with the mining law, not taking into consideration the advantages and benefits to themselves both in increased and economical production and percentage of coal recovered either of which may be credited directly or indirectly to having proper surveys made. There are few mines so situated that they cannot arrange to secure the services of an independent or contracting engineer, as often as necessary to have their mine maps kept up to date. The interval between surveys should be governed by the size of the mine and property, number of men employed and amount of development being done, few mine maps being kept up to date properly with surveys over four months apart. At most mines where the surveys are made semi-annually, numerous rooms are driven to their destination and the work of drawing pillars started; or places not driven to their destination are abandoned for

different reasons and sometimes cave between the visits of the engineer. In the meantime probably some advance work has been held up because sights were not set.

When the engineer visits the mine after an absence of six months he must depend on the mine foreman for considerable information as to the pillars extracted since the last survey, distances of the unfinished and fallen places, etc. As he is not always correctly informed, on account of a change in mine foremen or the desire of the mine foreman to cover up negligent work, the map sometimes shows an area worked out when it may have been lost on account of a squeeze or creep or bad roof. In this case the mine map does not furnish a means of checking the efficiency of the mine management and no correct calculation of the percentage of the seam recovered can be determined.

The engineer, realizing the feelings of the operator in this matter, frequently does not spend enough time to get certain important data, not wishing to increase the expense of the survey any more than absolutely necessary. At the same time the survey is rushed through in the shortest time possible; and often an error is discovered after reaching the engineering office, which may be located some distance from the mine.

Surveys Should Be Made Each Year

A better plan is to arrange with a contracting engineer to make a certain number of surveys per year and depend on him to furnish a map to comply with the mine law in every respect. An additional day or so will be spent on the surveys when necessary. When new work of any kind is contemplated, arrangements can be made to have the regular engineer do the work or employ one making a specialty of the particular kind of work.

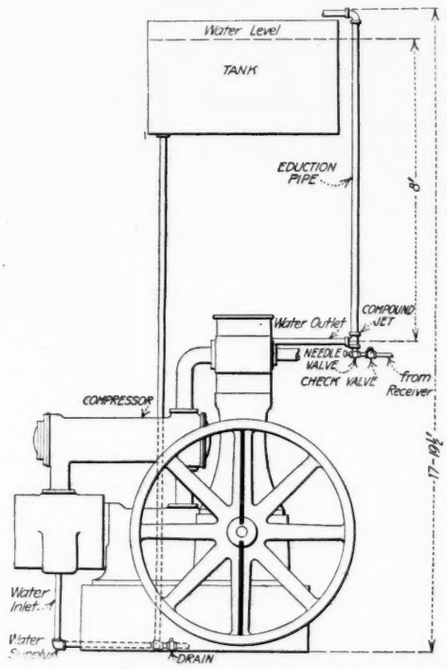
There are still operators who depend on the mine foreman to do their engineering. It is a great advantage to the mine foreman to have some knowledge of surveying; at least enough to enable him to read a map intelligently, use a scale and protractor, and calculate distances, elevations and grades.

When the mine foreman is required to set sights for entries and rooms he must neglect his regular duties to do so. This work is usually done with a compass and a loss of coal generally follows, owing to the inaccuracy of the work. On the other hand, a competent engineer, in addition to making the mine surveys correctly can frequently see ways to shorten the haulage; improve the ventilation; secure more effective drainage; increase the efficiency of the power and machinery and decrease the percentage of accidents, all of which leads to a lower cost of production. He also assures accuracy in installing new machinery, building miners' houses and other mine buildings, tipples and sidings.

If all of the coal companies had correct surveys made, it would undoubtedly reduce the amount of coal lost in mining, which at this time is the subject of much discussion. At the same time it would tend to reduce the cost of production in several ways; more coal would be recovered with the same yardage cost and new work started right would save the usual expense of groping in the dark. In short, proper surveys would cause: Greater efficiency in mine officials, less waste of coal in mining, less encroachments and fewer bad friends.

Circulating Jacket Water by Air Lift

The accompanying illustration shows how the air lift system of pumping can be utilized to form a simple and effective method of supplying cooling water to air compressor cylinder jackets. A small tank is placed about 8 ft. above the compressor, which gives sufficient height to permit the water to flow by gravity through the jackets. Instead of using a pump to elevate the water to the gravity tank again, a needle valve, or, still



CONNECTIONS FOR CIRCULATING WATER BY AIR LIFT

better, an air-lift mixing tube controlled by means of a pin valve, is placed at the base of the riser, just outside of the water jacket discharge. This valve is connected by a small pipe with the air receiver and a small amount of air is thus forced into the riser pipe, acting to carry the water from the cylinder jacket back to the elevated tank.

The amount of water required depends, of course, on the size of the compressor. Excellent results are secured and the heat in the water is reduced to a considerable extent by the expansion of air in the riser or eduction pipe.

The illustration shows the system as installed for a two-stage angle compound compressor. It is of course even simpler with a single-stage machine. In the installations thus far made no trouble whatever has arisen, and the system has kept the compressors properly cooled.—*Mine and Quarry.*

Nova Scotia's Strong Position

Coal fields are quite usually found inland. Those of the United States on the eastern coast are all a long way from the ocean. On the other hand the Nova Scotia coal is not only near the ocean, but under it, and it forms, as F. W. Gray remarks, the only deposit which may be correctly defined as being on the Atlantic Seaboard.

Byproduct Coke and Coking Operations*

BY
C. J. RAMSBURG †
AND
F. W. SPERR, Jr. ‡

Second Installment

COMING now to an examination of the natural surfaces of the blocks, we may, in the first place, disregard the color as being relatively unimportant. It depends largely upon the method of quenching, and, to some extent, on the quantity of the water used; the use of large amounts of water causing a dark color, while with the careful use of a minimum quantity of water a light gray color can always be preserved. The majority of cokes produced from the standard coking coals rich in hydrocarbon production and low in oxygen have close-textured, even surfaces, with possibly a few narrow, transverse zones of slightly larger cell openings interspersed between the two extremities. Many cokes from coals of the Connellsville (Penn.) type show the same silvery, glossy skin that used to be so much prized in beehive coke. This is probably indicative of a very heavy deposit of carbon, especially favored by slow and uniform evolution of a very rich gas.

Other cokes, fully equal in value to those just mentioned, are characterized by a peculiar shaggy appearance, as if they were covered with blotches of dark moss. This appearance is usually found in cokes produced from mixtures of eastern coking coals with the somewhat more highly oxygenated coals of the central field. Oddly enough, both types of coal usually make smooth coke if carbonized separately.

Certain cokes present transverse pebbly seams—usually not more than two or three. These seams are narrow and quite coherent, and may be shown to be composed of small globules of quite pure carbon, with no apparent cellular structure. This phenomenon again appears to be characteristic of the more highly oxygenated coals.

The surfaces always show more or less transverse and longitudinal cracks, significantly at right angles—either parallel or perpendicular to the wall of the oven. Naturally these are an element of weakness, and their presence to an excessive degree is one of the surest "first-hand" indications of an inferior grade of coke that we have. The amount of fracturing can be controlled to a surprising extent by proper method of heat treatment.

By breaking a piece of coke and examining the fresh surfaces we find revealed the cellular structure that is characteristic of all cokes and which cannot be seen in its true development simply by inspecting the dense natural surfaces. No definition of coke is complete that does not take this cellular structure into account.

The usual way—and the easiest—to examine the cell

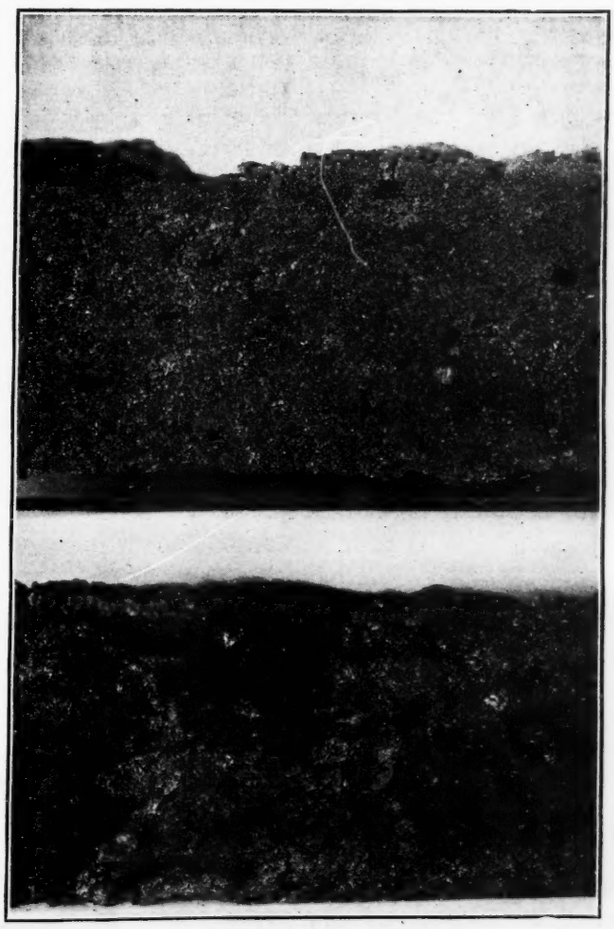


FIG. 9. NO. 4 STRUCTURE COKE

*Presented by Mr. Ramsburg at a joint meeting of the Mechanical and Engineering Section and the American Society of Mechanical Engineers.

†Second vice president, the H. Koppers Co., Pittsburgh, Penn.

‡Chief chemist, the H. Koppers Co., Pittsburgh, Penn.

structure is to break a piece of coke crosswise and note the appearance of the fresh surfaces. Great care must, however, be taken, in comparing one coke with another by this method, to break the pieces at approximately the same distance from the wall end, since the size of the cells is apt to increase considerably from the wall to the center. Oddly enough, in many cokes there is a characteristic difference in the two surfaces of a break. No matter where the piece is fractured, the surface on the wall side has almost a granular appearance, with a steel-gray luster and well-defined cell openings. The opposite surface (that is, looking toward the center of the oven) has a characteristic graphitic luster, with the cell openings flatter and possibly not so sharply defined.

For any accurate comparison of the cell structure of different cokes we prefer to make longitudinal sections with a thin emery wheel—such sections as are shown in this article. If this is done, the danger of confusing

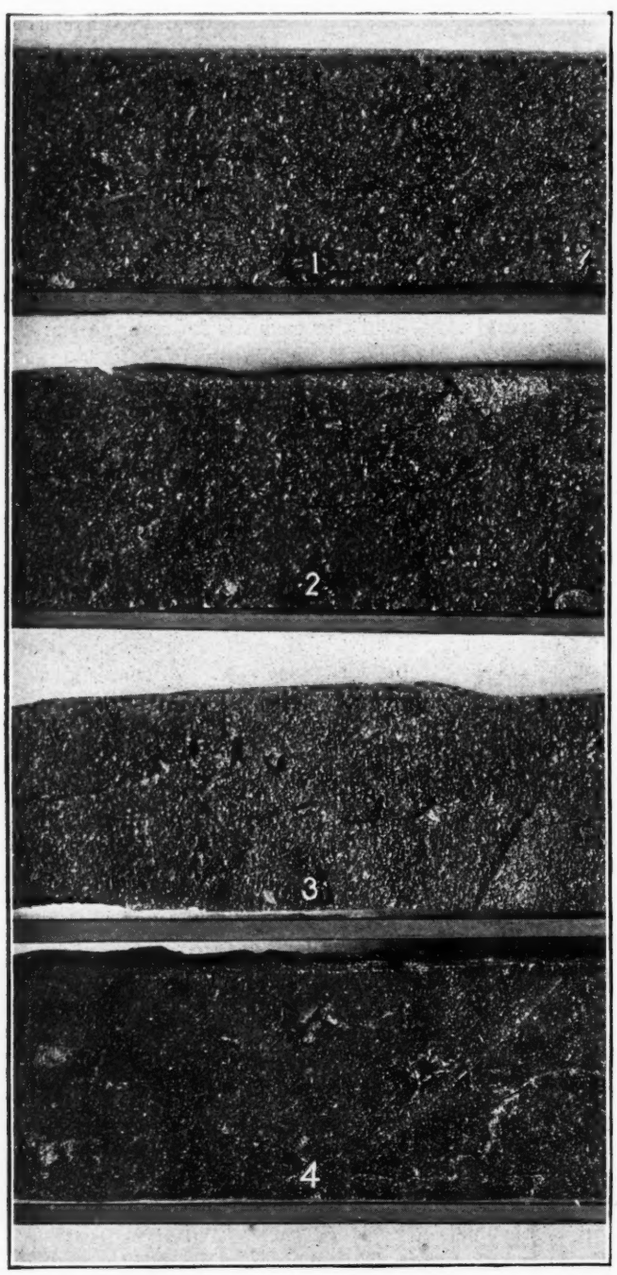


FIG. 10. STANDARDS FOR GAGING CELL STRUCTURE

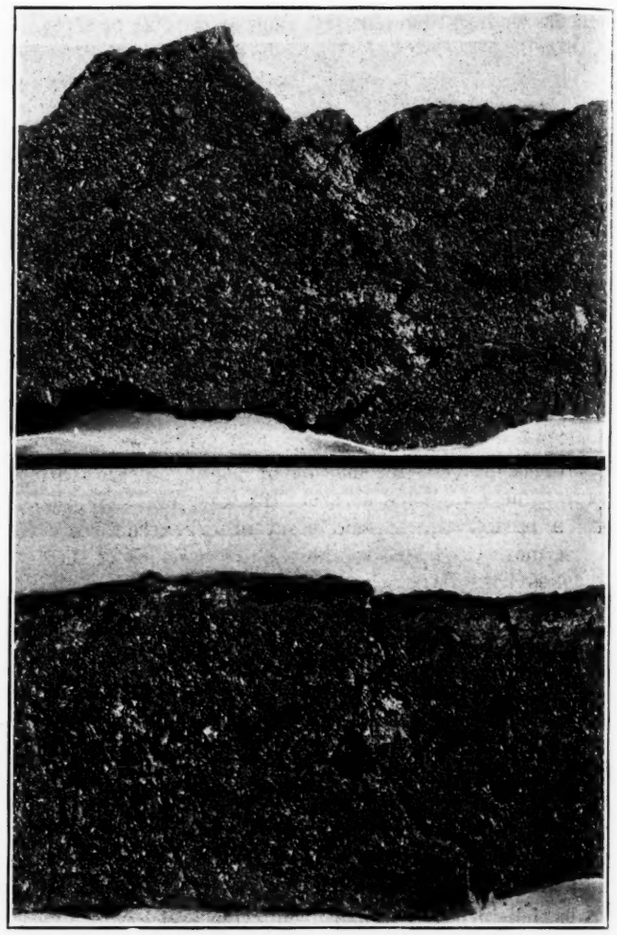


FIG. 11. NO. 1 STRUCTURE COKE

sections made at different distances from the wall will be largely eliminated. It must be mentioned that breaking a piece of coke longitudinally so as to reveal the real cell structure is a decidedly difficult matter. Almost always the break will be found to be made along the plane of a natural longitudinal fracture, and the exposed surfaces will be found to be covered with deposited carbon.

Great importance has been attributed to the cell structure of coke by all authorities on the subject, and especially by blast-furnace operators, and yet the subject is very poorly defined and no standards of comparison have been established. We have recently begun the use of a simple system, analogous to the scale of hardness used in the study of minerals, which we hope may come into general favor. At present we employ a set of our standards, shown in Fig. 10. These are all longitudinal sections, cut from blocks of typically different coke. The sections are the same length, and each is cut beginning 1½ in. from the wall end. The sections are numbered 1 to 4 in order of decreasing cell size. With such a set of standards it is easy to grade any coke according to its cell structure, and the grading will convey a much more definite idea than the loose terms of "dense," "close," "rather close," "fairly open," "medium," etc., that have hitherto been used. No term in our usual technical vocabularies has been so overworked as the word "medium," as applied to the cell structure of coke.

In addition to grading cokes according to the size of

the cells, we may also classify them as regular or irregular in cell structure. The standards would all be considered as regular in structure. This does not mean at all that the cells are of the same size, but their general arrangement gives an easily perceived impression of regularity. What we mean by irregular structure is well illustrated by the section shown in Fig. 9. This sort of coke has alternate patches of close and open texture, and is frequently produced by the more highly oxygenated class of coking coals, as well as by mixtures of coals having different characteristics.

It might possibly be thought now that an interesting table could be prepared grading the cell structure of cokes produced from various typical coals. Such a table would be well-nigh valueless, unless the data were carefully qualified by details regarding preliminary treatment of each coal, dimensions of ovens, temperatures, coking time, and several other factors, each of which plays a part in the development of cell structure. It may be more profitable to show a few sections of different cokes that have given successful results in blast-furnace and foundry practice in various parts of the country. Figs. 9, 11, 12 and 13 illustrate some specimens that have been carefully selected to be as representative as possible.

Sometimes too much reliance is placed in the determination of the specific gravity and porosity of coke. Figures as to porosity or the percentage of cell space in the total volume of coke are almost valueless, unless supplemented by an examination of the actual size of cells

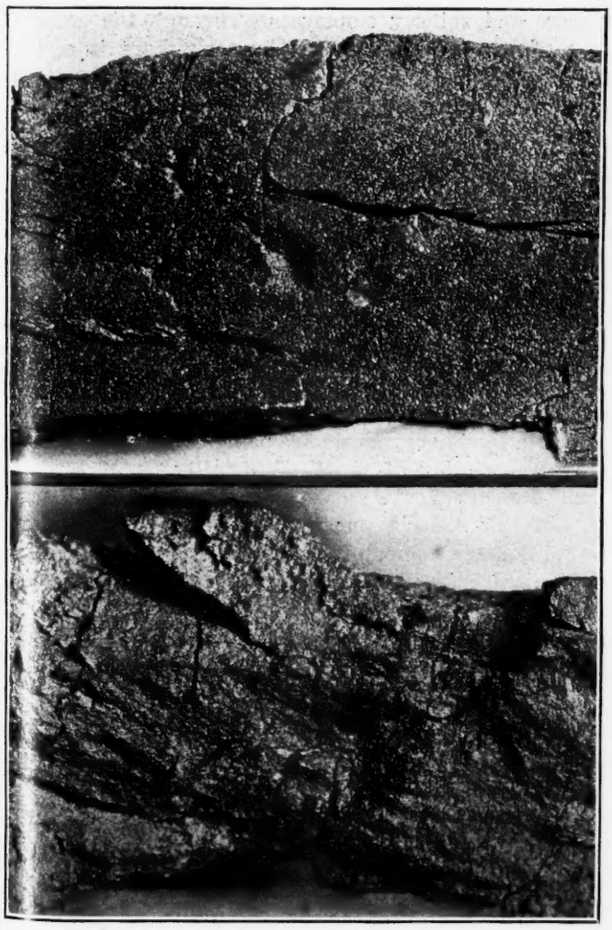


FIG. 12. NO. 3 STRUCTURE COKE

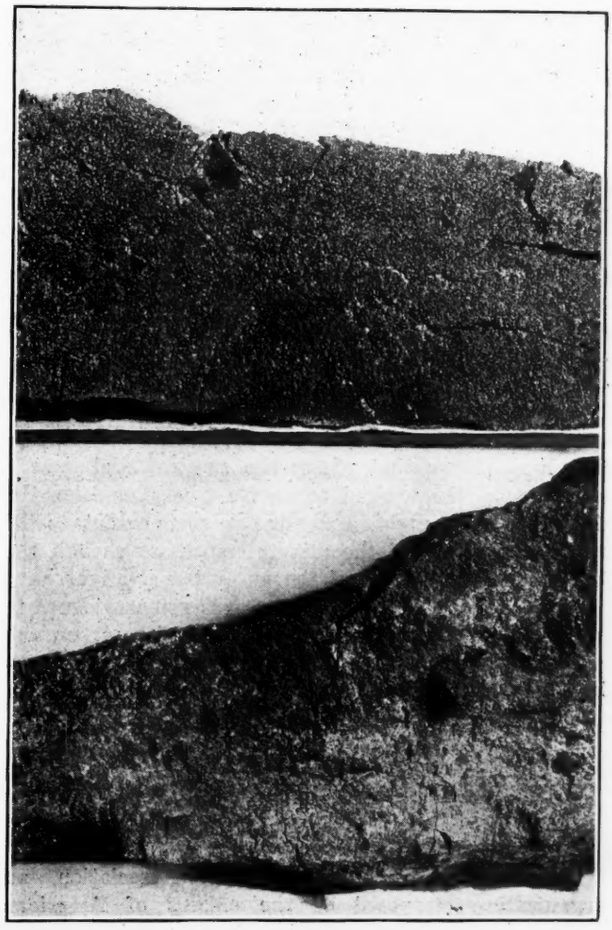


FIG. 13. NO. 2 STRUCTURE COKE

and thickness of cell walls. A coke of close texture and thin walls may have the same percentage of cell space as one having large cells and relatively thick walls. As John Fulton[1] the pioneer investigator of coke, said, 34 years ago: "Mere cellular space . . . cannot be used as an element in the practical determination of the value of cokes for blast-furnace use. Furnace gases cannot act on cell spaces; they can only act on exposed surfaces." It is the cell walls and surfaces that are the most important. Cell space and porosity, which is the measure of it, are merely incidental.

The following table of specific gravities and porosities of the coke specimens, some of which are illustrated in this paper, will show that there is really no relation between cell structure and porosity:

TABLE III. SPECIFIC GRAVITIES AND POROSITIES OF COKE SPECIMENS

Cell Grading	Figure	Apparent Specific Gravity	True Specific Gravity	Porosity
4 (Standard)	10	1.097	1.917	42.8
4	9	0.924	2.006	53.7
3 (Standard)	10	1.007	2.028	50.4
3	12	1.138	1.948	41.6
2 (Standard)	10	1.071	1.831	41.6
2	13	1.053	1.917	45.1
1 (Standard)	10	0.943	1.988	52.6
1	11	0.917	1.921	52.3

In passing from this subject of the examination of coke sections we should take occasion to point out the interesting field that is here open for the application of petrographic methods to an exhaustive investigation of the material. The actual chemical and physical state

[1]Trans. "Am. Inst. Min. Eng.," October, 1883.

of the carbon produced from various coals under various conditions is an important matter from a practical standpoint. Differences in the true specific gravity of coke are frequently found that cannot be explained by variation in the content of inorganic matter. The actual condition of this inorganic matter after carbonization, the amount of reduction of the various oxides, the possible effect of the finely disseminated mineral matter in strengthening or weakening the cell walls are all very important. Inorganic matter does not necessarily constitute an element of weakness. Large particles, especially if segregated, are injurious, but finely divided mineral matter may actually strengthen the cell walls. High-ash cokes are frequently stronger than low-ash cokes from the same kind of coal. Some experiments in washing and coking coals of moderate ash content have shown that where the original coal gave a strong coke, the washed coal gave a weaker coke, the difference being undoubtedly due, to some extent, to the removal of some of the mineral matter, although the high moisture content of the washed coal might have had some effect. Simmersbach gives some evidence to show that iron present in combination with carbon and silicon, and silicon present as a silicon carbide, may be the cause of the remarkable hardness of some coke.

(To be concluded)

Convention of the International Railway Fuel Association

The International Railway Fuel Association, an organization composed of the officers of American and Canadian railway fuel departments and coal operators, recently tendered its services to the Government to aid in the effort to stimulate coal production and to enhance economy in its use. This offer has been accepted by the United States Fuel Administration and by the United States Railroad Administration, and these two Government departments, in coöperation with the officers of the Fuel Association, have arranged for a convention to be held in Chicago on May 23 and 24, 1918. The tentative program for this convention is as follows:

1. INTRODUCTORY ADDRESS—E. W. Pratt, President International Railway Fuel Association
2. THE FUEL PROBLEM IN THE WAR—H. A. Garfield, United States Fuel Administrator
3. THE RAILROADS AND THEIR RELATION TO THE FUEL PROBLEM—C. R. Gray, Director Division of Transportation, United States Railroad Administration
4. WHAT CAN BE DONE FOR OUR NORTHERN ALLY—Sir George Bury, Chairman Canadian Railways War Board
5. THE NEED FOR FUEL CONSERVATION—P. B. Noyes, Director Conservation Division, United States Fuel Administration
6. THE COAL OPERATOR AND HIS RESPONSIBILITIES IN THE FUEL SITUATION—Edwin Ludlow, Vice-President Lehigh Coal and Navigation Co., Lansford, Penn.
7. WHAT THE MEN ON THE LOCOMOTIVES CAN DO—W. S. Stone, Grand Chief, Brotherhood of Locomotive Engineers
8. WHAT THE COAL MINER CAN DO TO HELP THE GOVERNMENT, THE RAILROADS, AND THE MEN AT THE FRONT—John P. White, Labor Advisor, United States Fuel Administration
9. THE MOTIVE POWER DEPARTMENT AND FUEL ECONOMY—R. Quayle, General Superintendent Motive Power and Car Department, Chicago & North Western Railway
10. WHAT THE COAL OPERATOR CAN DO TO HELP WIN THE WAR—H. N. Taylor, Vice-President Central Coal and Coke Co., Kansas City
11. THE RAILROAD INDUSTRIAL ARMY—A COMPONENT PART OF THE AMERICAN EXPEDITIONARY FORCE AND THE ALLIED ARMIES—W. S. Carter, Director, Division of Labor, United States Railroad Administration
12. THE SUPPLY AND DISTRIBUTION OF FUEL—J. D. A. Morrow, Director, Distribution Division, United States Fuel Administration
13. RELATION OF LOCOMOTIVE MAINTENANCE TO FUEL ECONOMY—Frank McManamy, Director, Division Locomotive Maintenance, United States Railroad Administration
14. THE TRANSPORTATION DEPARTMENT AND FUEL ECONOMY—E. H. De Groot, Jr., Assistant Manager, Car Service Section, Division of Transportation, United States Railroad Administration
15. MORE AND BETTER COAL—Eugene McAuliffe, President Union Colliery Company, St. Louis

The two Government administrations and the officers of the Fuel Administration believe that this convention will provide an opportunity to arouse renewed interest in the fuel problem and to stimulate greater effort on the part of all concerned in the production and use of fuel; and they hope to attain these ends through a series of inspiring addresses by representatives of the various interests involved, which, by appeals to patriotism, shall seek to stimulate enthusiasm and to enlist coöperation. The speakers on this occasion are all men of national prominence, whose previous experience or present contact with the fuel situation will enable them to speak with authority to mine operators, mine workers, railway officers and railway employees. Through the coöperation of the two Government bureaus there is certain to be in attendance at this convention a large audience composed of men, who, in their daily work, can directly affect the production of coal, both as regards quality and amount and its economical use on the railways of the United States and Canada. The fact that the railways use nearly one-third of all the coal produced is, in itself, an earnest of the importance which the Government attaches to its conservation and to this convention.

The general arrangements for the convention are going forward under the direction of C. R. Gray, Director of the Division of Transportation, United States Railroad Administration, and P. B. Noyes, Director of Conservation Division, United States Fuel Administration. The details of the program are being arranged by a committee consisting of E. W. Pratt, President, International Railway Fuel Association; J. G. Crawford, Secretary of this Association; Eugene McAuliffe, President, Union Colliery Company, of St. Louis, Mo., representing the United States Railroad Administration; Major Edward C. Schmidt, representing the United States Fuel Administration, and Morgan K. Barnum, Assistant to the Vice President, Baltimore & Ohio Railroad.

To Test Explosibility of Coal Dust of Illinois Mines

The Government intends to conduct a demonstration of the explosibility of the coal dust of Franklin County, Illinois, on May 6 and 7, at the Government Experimental Mine, at Bruceton, Pennsylvania. The tests will be made under the direction of the Bureau of Mines.

Coal Industry of Vancouver Island

By ROBERT DUNN
Victoria, B. C.

THE coal industry of Vancouver Island, British Columbia, was never in a more flourishing condition than at the present time. From east to the west of Canada has gone forth the order "more and yet more coal," and the companies of this section are speeding up to an extent only limited by their ability to obtain equipment and men. The Canadian government has intimated that the western Provinces this year would be expected to produce two and one-half million tons more coal than in 1917, the object being to meet the local demands for fuel for industrial and domestic purposes as far as possible, if not entirely, from local supplies. Thus, it is hoped, Canada's present dependence on the United States, a condition which was very apparent last year at a time when the United States could least spare the coal, will be to some extent relieved.

With the situation as thus sketched before them the coal-mine operators of Vancouver Island, no doubt in common with those of all the western section of the Dominion, look upon themselves as in duty bound, from the viewpoint of the best interests of the British Empire and her Allies, apart from the question of whether it is or is not good business, to do their utmost to swell the monthly output. Last year there was an exceptional demand, and the Island collieries, rising to the occasion, marketed 1,698,235 tons in comparison with a total for 1916 of 1,492,761. But then there was not the special application of the spur that recently has been brought to bear upon them, with the result that the first three months of 1918 find practically every mine with returns considerably in excess of the corresponding periods of the previous year. And it may be said now with assurance that, at the pace set, 1918 will find the Vancouver Island output of coal much ahead of the past twelvemonth, while the same may be said with confidence, although the writer has not the figures before him to substantiate it, with regard to the combined totals of the collieries of the Province of British Columbia.

Record Made By Western Fuel Co.

The Western Fuel Co., one of the largest producing companies of the Island, established a record for the month of March of 70,000 tons, which is larger than that of any previous month in its fifty-year history of operation. One of its recent enterprises was the reopening of an abandoned mine known as the Harewood. It had been standing for several years, a former management having decided that it could not be expected to pay expenses. In March the Harewood's output ran up to the useful total of 19,000 tons. This, however, is not all. The company has possession of a considerable area of coal lands in what is known as the Nanaimo Coal Field, which is yet undeveloped. Coal being a national necessity under existing conditions, it has been decided to open up some of these areas and diamond drilling now is in progress with that end in view. The definite intention is to open two new mines and these, it is believed, will be producing coal before the end of 1918.

The Canadian Collieries (Dunsmuir) Ltd. is another company which is busily engaged in the extension of its operations. It is opening a new mine on the Douglas seam at South Wellington, a well-known coal mining center of the Island. Three parallel slopes are being driven to tap this area. A good substantial tipple is being built and a modern screening and cleaning plant is being installed. A large power house has been erected which contains three return tubular boilers of good steaming capacity, while compressors and dynamos for furnishing power for the mine have been installed. There are being laid out, besides, extensive sidings and yard room which will be connected with the Esquimalt & Nanaimo Ry. by a short spur. This will enable the coal to be shipped over the Esquimalt & Nanaimo to the company's wharves at Ladysmith, B. C., whence it may be distributed overseas to the local or foreign markets. Before the end of the year this mine should be one of the Island's large producers.

Further Development Work Going On

About three miles south of the foregoing operation, between Ladysmith and Nanaimo, B. C., is the center of another new and important development of the coal-mining industry of Vancouver Island. Here the Granby Consolidated Mining, Smelting and Power Co., Ltd., has secured, at an outlay of approximately $750,000, a considerable block of coal lands. The opening of a new mine, the installation of the necessary plant for the handling of the coal, the erection of buildings for the accommodation of employees, and the construction of wharves, etc., at a seaboard point known as Cassidy's Landing will involve a further expenditure of at least $500,000. This work is in progress, in fact it has made considerable headway. The company's plans, however, do not stop at this, it being proposed to install at Anyox, B. C., the company's mining and smelting center on the coast of the mainland of British Columbia, a byproduct coke-making plant at an estimated cost of $1,500,000. This will make it possible for the company to mine its own coal, transport it to Anyox for treatment, and thus secure the coke needed for the smelting of its large supply of copper ores.

In the opening of its new coal mine the company is driving three slopes, one of which is to be used as a main haulageway, another for ventilation and the third for a mainway. A large acreage has been cleared, graded and surveyed into lots for building houses; a spur has been constructed from the Esquimalt & Nanaimo Ry. into the mine site; sidings and yards are being laid out and a sawmill is being installed to cut timber for the company's use.

It may be said, with respect to this enterprise, one of the most notable in connection with the coal industry in western Canada for years, that it has been brought about largely because of the determination of the company to be as independent and as self-sustaining in its

operations as possible. It is easily the greatest producer of copper in British Columbia, the total production for the Province in 1917 being, roughly, 59,000,000 lb., to which the Granby company's contribution was, also in rough figures, 34,500,000 lb. In 1916, however, its output was 45,631,600 lb. The decrease is accounted for by the fact that last year, owing to the explosion at the Fernie Coal Mines, Coal Creek, and the ensuing strike, there was a period during which the usual source of coke was unavailable. With these facts in mind the chief object which the management of the company has in mind in its present program is apparent. It is not proposed, in the future, that the operations of the company's mines, its smelters at Anyox and Grand Forks, B. C., shall be interfered with by lack of fuel through industrial troubles for which it is in no way responsible and so can in no way control.

Incidentally at present, but a factor which may enter very largely into the Granby company's activities in the future, are the possibilities of the byproduct ovens and the recovery of those elements of the coal the importance of which has been so strongly emphasized as a result of the disorganization of the old commercial order by the war. Into this branch of industry the company proposes entering very thoroughly, and it is confidently believed that the outcome will be the development in western Canada of a number of profitable subsidiary industries.

The Granby company's coal mine, at the present rate of development, should be prominently on the list of producers before the end of the year.

Vancouver Island's annual production of coal for the past twenty years is shown by the following table:

	Tons		Tons
1917	1,698,235	1907	1,342,877
1916	1,492,761	1906	1,178,627
1915	1,020,942	1905	993,899
1914	1,072,314	1904	1,023,013
1913	973,495	1903	860,775
1912	1,558,207	1902	1,173,893
1911	1,625,122	1901	1,271,744
1910	1,625,930	1900	1,383,376
1909	1,187,985	1899	1,191,008
1908	1,022,673	1898	1,126,531

In the Nicola-Princeton district the output up to the end of February, in comparison with the same period last year, showed an improvement of 20,000 tons. Two collieries have been opened up again which had been closed for a considerable period. The Inland Coal and Coke Co. has been reorganized under the name of the Fleming Coal Co., and its mines at Merritt, B. C., have resumed operations after a suspension which dates back to the middle of the month of March, 1917. The Coalmont Colliery has been reopened after a period of idleness extending from the early part of 1915. The Middlesboro Collieries are the largest producers in this district, being engaged in the operation of three mines. The Princeton Collieries rank second in production but will have a keen rival for second place during the coming months in the Fleming Coal Company.

Since the taking over of control by the Dominion Government of the collieries of what is known as District 18 by the United Mine Workers of America, the mines of the Crow's Nest Field, B. C., which come within that section, have been making a good showing. The production thus far this year is considerably greater than that for the first two months of 1917, the tonnage produced by these mines for January and February, 1917, being 94,295 tons, while in the same period this year it reached 135,986 tons, an increase of 41,691 tons. It is reported that satisfactory progress had been made in cleaning up the mines which were wrecked by "bumps" and explosion last April, and these mines soon will be active producers again.

Legal Department

EFFECT OF IOWA COMPENSATION ACT—When an Iowa coal operator sued for injury to an employee sustained in the course of employment has previously given notice of his election not to be bound by the provisions of the Iowa Workmen's Compensation Act, the burden rests upon the operator to affirmatively disprove negligence causing the injury sued on. This reverses the general rule of law under which plaintiff in a personal injury action has the burden to prove negligence. By further provision of the act, contributory negligence of the employee in such case does not release the defending operator from liability, unless it was due to willful misconduct or intoxication of the injured employee. The employee assumes no risks of injury traceable to the employer's negligence. In this case, involving liability for fatal injury to a miner who was struck by slate falling from a mine roof, the plaintiff was properly permitted to show that the roofs all along certain roadways and rooms were loose and drummy, as tending to charge defendant operator with knowledge of the existence of the dangerous condition resulting in this accident. That decedent was injured while attempting to temporarily timber a drummy roof in a roadway, after notifying the foreman of the need for timbering, did not constitute such contributory negligence as bars recovery under the Iowa law, although by statute it was decedent's duty to timber his working room and not the roadway, duty to timber that resting on the mine foreman. The accident must be attributed to the primary negligence of the operator in permitting the dangerous condition to remain. (Iowa Supreme Court, Mitchell vs. Sanwood Coal Co., 166 Northwestern Reporter, 391.)

SUBLEASING OF COAL LANDS—Complainant, having acquired a lease on Alabama coal lands under an agreement binding him to pay a royalty of 5c. per ton on coal produced, made a contract with one Ellis under which the latter was given the right for 13 years, a period less than the unexpired portion of complainant's lease with the landowners, to mine the coal, on an agreement that Ellis guaranteed a minimum royalty of 7c. on at least 50 tons per day, regardless of actual production, except as the coal might become exhausted before expiration of the 13 years. Ellis assigned his rights to defendant, and defendant, in turn, permitted the Gayosa Coal Co. to mine the property. Under these circumstances, the Alabama Supreme Court, in holding that complainant is entitled to compel the defendant and the Gayosa company to account for royalties to him under the original lease, said: "It is true that the coal companies were not parties to the lease between complainant and Mark Ellis, but the Bruce company admitted a transfer by Ellis to it, and that it undertook to operate the mine under said lease; and we do not see how it can be permitted to accept only so much thereof as it desires and reject such portions thereof favorable to the complainant and made for his protection. The lease provided a fixed price for the coal and for a minimum monthly royalty or rent, until the lease terminated, either upon the expiration of the time covered or until the coal was practically exhausted, and it of course became liable for such royalty or rent as was fixed by the lease. The Gayosa company did not claim to be the assignee of the lease from the Bruce company, but, being a large stockholder in the said company, it undertook to carry out the said lease, and proceeded to mine coal thereunder, and it too is estopped from accepting the benefits and rejecting the burdens. (Bibb vs. Bruce Coal Co., 77 Southern Reporter, 545.)

Water Transportation for Relieving Railroad Congestion

In the issue of *Coal Age* for Mar. 2, Mr. Wotherspoon has written an able article on the canal as a carrier of coal, showing how the new barge canal can be utilized for the distribution of both bituminous and anthracite in the parts of New York state reached by this canal.

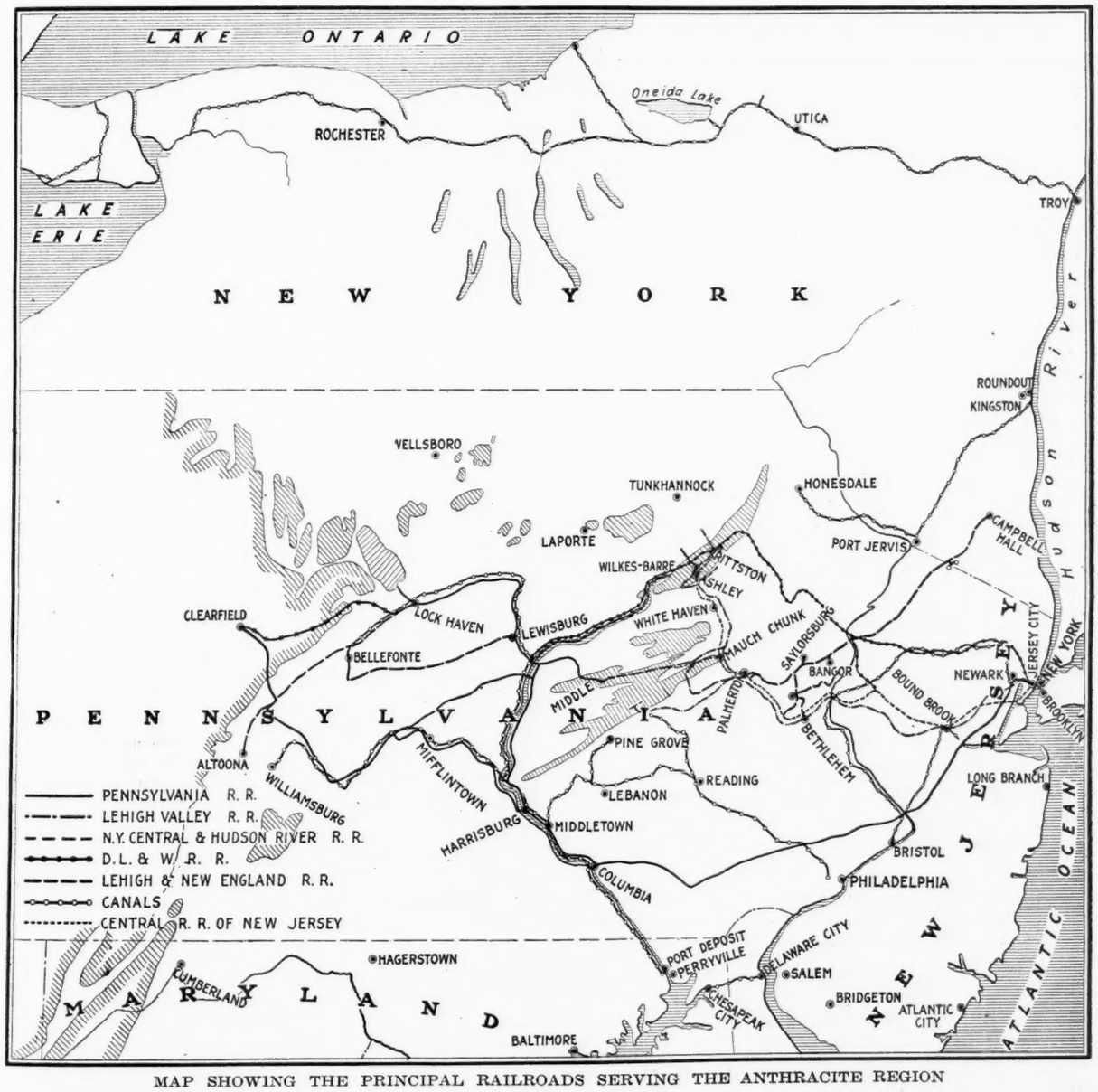
The great congestion, however, due to the war is at the large shipping ports, and this congestion is liable to increase rather than decrease, as our necessity for supplying food, munitions, etc., to Europe will continually grow with the increase of our own army on the other side.

The experience in European countries, especially such congested centers as Belgium, northern France and eastern Germany, has been that they have had to utilize the canals to their full limit for all slow-moving freight, in order to enable the railroads to handle the remaining traffic.

The experience in this country has been that the old canals, with their small locks, necessitating a limited capacity for each boat, have not been able to compete with the railroads in moving economically any class of material.

On the Ohio and Kanawha Rivers, however, the Government by putting in dams and creating slack-water navigation has been enabled to utilize the rivers for the shipment of a large proportion of the coal used at the towns along these waterways, even as far as New Orleans. These barges are made up in large flotillas and each is carried down by one steamer at a minimum of expense. The railroads have been thus relieved of this proportion of low-grade, slow-moving freight.

A study of the accompanying map shows that the principal railroads serving the anthracite region all



MAP SHOWING THE PRINCIPAL RAILROADS SERVING THE ANTHRACITE REGION

reach the Lehigh and Delaware Rivers at their junction at Easton. From Easton to Bordentown, a distance of 63 miles, there is still in service the Delaware Division Canal of the Lehigh Coal and Navigation Co. The locks on this canal are so small that the ordinary canal boat has to be made in two halves, one-half locked through at a time. It is impossible under such conditions to transport economically any large quantity of coal. Furthermore, the smallness of the canal necessitates mule haulage, which is both slow and expensive.

The United States Government, under the River and Harbor Bill, can make appropriations for the improvement of the Delaware River as far as Bordentown to enable boats to use the inside passage from Philadelphia to New York through the Delaware and Raritan Canal. An examination of the river shows that no engineering difficulties would be encountered in building dams that would produce slack-water navigation from Bordentown to Easton.

Should Build Coal Docks at Easton

If the railroads centering at Easton, consisting of the Delaware, Lackawanna & Western, Lehigh Valley and the Central Railroad of New Jersey, had coal docks at that point the coal could there be loaded into barges, transported in fleets by steamers in the same manner as on the Ohio and Kanawha Rivers, and these boats delivered in New York Harbor through the Delaware and Raritan Canal. From that point they could be taken to serve all the waterfront yards not only in New York Harbor, but up the Hudson and at points on Long Island Sound. There would be a further extension of this traffic down the Delaware River to Philadelphia and to the growing towns below Philadelphia, Chester and Wilmington, while through the Delaware and Chesapeake Canal at Delaware City inland water connection would be made with Baltimore and Washington.

This might be objected to for the reason that it may be thought impossible to build a fleet of barges at this time sufficient to handle so large a traffic as this would represent, but the experiments that have recently been made in reinforced-concrete construction have shown that it is possible not only to build barges such as have been in service in New York Harbor for some years, but to build ocean-going vessels of as high as 5000 tons capacity.

Easton is only a short distance from the great cement region of Pennsylvania and connected with it directly by rail. The improvement of the existing canal up the Lehigh River to Bethlehem, Allentown, Catasauqua and the cement and slate regions immediately above these points would bring in a large return freight in the way of iron ore to the Bethlehem Steel Co. and the other iron plants and also the shipment of cement, slate and fabricated iron that makes so large a proportion of the bulky freight now produced in that manufacturing region.

This route would also open up a direct line of communication between New York Harbor and the soft coal fields of central Pennsylvania. The Reading R.R., which reaches the Lehigh River at Allentown, carries as much bituminous coal as it does anthracite. The Lehigh Valley and Central Railroad of New Jersey are also large carriers of bituminous coal, and by making traffic arrangements the Pennsylvania could divert its soft-coal shipments for New York Harbor at Harrisburg and send them through to Allentown and Easton and relieve that part of the line which is most congested.

The advantages appear to be in favor of such a method of economical handling of the coal, especially anthracite, during the summer months; the cutting down of the railroad haul on this coal by more than half, the quick return of the cars to the mines and the relief of the congested conditions at all the ports in New York Harbor.

As the Delaware River is a dividing line between the states of New Jersey and Pennsylvania, work of this character is interstate and should be handled by the Government under its rivers and harbors appropriations.

Japan Has Good Metallurgic Coals

The following table, taken from the report of the Department of Commerce and rearranged according to percentages of fixed carbon, shows that Japan has excellent metallurgical coals. Overlooking five coals out of 25, it will be seen that the sulphur in the coal is remarkably low, varying in the 20 samples from 0.07 (an almost impossible figure) to 1.19. The ash is also quite low at times and at no time abnormally high. Most of the coals have the caking quality. Only one of the coals is really lignitic.

ANALYSES OF JAPANESE COALS ARRANGED IN ORDER OF THEIR PERCENTAGES OF FIXED CARBON

	Fixed Carbon	Volatile Matter	Moisture	Ash	Sulphur	British Thermal Units	Nature
Asahi	77.16	14.73	2.27	5.84	8.08	14,598	Caking
Hojo	65.38	26.98	2.42	5.22	0.37	13,068	.....
Otsuji	57.69	32.36	6.58	3.37	0.07	.....	Noncaking
Shimoyamada - Takeyabu	54.66	35.89	1.71	7.74	0.18	.....	Noncaking
Kanada	53.48	40.00	3.32	3.20	0.39	.....	Caking
Mineji	53.48	39.94	3.33	3.25	1.19	.....	Caking
Takashima	53.42	39.08	0.98	6.52	0.56	14,454	Caking
Arate	53.15	43.22	2.15	1.35	....	.....	Caking
Namadzuta-Chirimen	52.68	42.50	1.66	3.66	0.81	13,662	Caking
Tadakuma	52.37	42.50	1.37	3.76	0.69	11,819	Caking
Fukucka-Takata	51.86	40.24	2.40	5.50	0.72	13,464	Caking
Hokoku	50.76	45.67	1.70	1.87	0.36	14,256	Caking
Akaike	50.44	43.99	2.64	2.93	0.41	13,662	Caking
Hondo	49.31	46.21	3.16	2.32	0.44	14,112	Caking
Shagano	48.63	42.11	1.59	6.87	0.37	13,464	Caking
Meiji	48.23	38.21	2.28	11.28	0.79	13,068	Caking
Niinobu Kankan	48.11	41.93	0.75	9.21	5.94	.....	Caking
Noyama	46.70	46.30	3.10	3.90	0.76	13,266	Noncaking
Shin-nyu	44.60	41.70	2.00	11.70	0.62	12,276	Caking
Takao	44.30	43.80	1.50	10.40	3.40	12,276	.....
Arate Miyeda	44.10	43.70	5.60	6.60	2.53	11,880	Noncaking
Ida	40.43	51.93	1.96	5.68	0.39	13,212	Caking
Iriyama	30.12	43.15	12.89	13.84	0.37	.....	Noncaking
Onoda	27.72	58.08	4.92	9.28	....	.....	Caking
Okinoyama	23.59	49.37	9.39	17.65	3.14	.....	Noncaking

Better Light for the Mine Plant

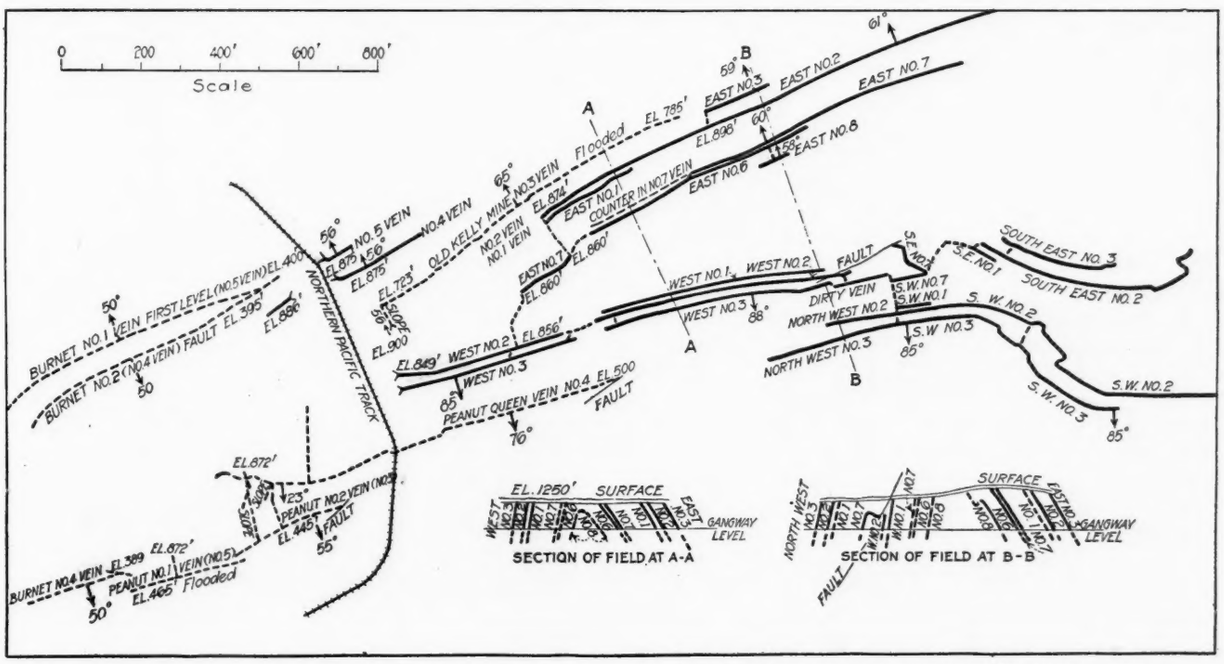
"Laco-dalite" is the trade name of a new article for improving industrial lighting that has just been placed upon the market by the Laco-Philips Co., 131 Hudson St., New York. It consists simply of a special blue glass screen that is clamped over the bottom of the electric light reflector, thus inclosing the bulb. The light thus filtered through the special blue glass, it is claimed by the manufacturers, is equal to that obtained from the nitrogen lamp. It is said to be white and pure and the equivalent of daylight. The question of proper lighting is important in breakers and picking tables. Both here and in the drafting room, as well as in other places, a device of this sort might be worth a trial.

Coal Mining in Washington*

By F. A. HILL
Manager, Cokedale Coal Co., Sedro-Woolley, Wash.

SYNOPSIS—*The coals of Washington vary from brown lignite to anthracite and while low in sulphur are somewhat high in ash. As a result of the variety of conditions the output varies from 1.55 to 5.60 tons per employee.*

COAL mining in the State of Washington offers many interesting problems for the mining engineer, due to the variety of the physical conditions in the different fields, and often in the same mine. The several coal seams worked in the same mine commonly require different mining and transportation methods for economical operation. The coal measures have inclinations ranging from 5 deg. to vertical, and in the same mine the dip of the coal may vary from 30 deg. to 50 deg. In all fields, the seams are extensively faulted, folded, and sheared.



HEADING PLAN OF WASHINGTON MINE SHOWING TYPICAL DIFFICULTIES CONFRONTING OPERATION

The quality of the coal produced ranges from brown lignite to bituminous coking coal, the following being typical analyses:

	Lignite	Sub-bituminous	Coking Coal
Moisture	23.5	14.30	0.57
Volatile hydrocarbon	31.0	33.03	23.57
Fixed carbon	37.4	41.30	65.55
Ash	8.1	11.37	10.31
	100.0	100.00	100.00

Little of the coal contains as much as 0.75 per cent. sulphur. The brown lignites occur mostly in Lewis and Thurston Counties, and as a rule are mined at low cost. This coal has been successfully used in locomotives of the Oregon & Washington R.R., when equipped with specially designed fireboxes.

The sub-bituminous coals occur in all the coal-mining counties. Their cost of production varies widely, according to the character of the formations, the pitch, and the wall conditions. They make a fairly good steam fuel. The lump coal is used mostly for domestic trade, when the coal is graded into lump, nut, and pea.

The coking coal is used for making coke, and for locomotive and other boiler fuel. It yields a strong metallurgical product, quite high in ash, but seldom containing over 18 per cent. of such impurity. Most of it would be susceptible to better cleaning than it now receives, but it will be difficult from any seams now known, to produce a coke containing less than 16 per cent. ash.

Anthracite occurs in Whatcom County. The seams cannot be traced continuously for any great distance, although they outcrop here and there. These deposits lie on the edge of a carboniferous field, but no seams in which commercial mines could be opened have yet been found in that locality. West of that locality two seams have been worked; one has been closed for many years, and the other is producing a small amount of coal. In the Cowlitz Pass section of Lewis County, anthracite has also been found, but the field has not been thoroughly prospected, partly because it is remote from transportation.

With few exceptions, all the coal under 2 in. in size needs washing, and all over that size requires hand-picking to eliminate the rock and heavy bone. Many

*Article to be read at the Colorado meeting, American Institute of Mining Engineers, September, 1918.

of the mines yield as much as 30 per cent. waste, the heavy pitch of the seams precluding any separation of waste underground.

The coal has heretofore been graded as follows: Lump, over a 2-in. screen; nut, 2 in. to ⅝ or ¾ in.; pea, ⅝ or ¾ in. to ⅛ in.; mine-run includes all but the lump. The coal under ⅛ in. is called sludge, and its market has been irregular; it will form a satisfactory powdered fuel provided it is mechanically dried before leaving the mine. If wet, it will not run, but will stand vertically in bunkers or cars.

The output of coal per employee per shift ranges from 1.55 to 5.60 tons, in profitably operating mines, the brown lignites producing the highest and the coking coals the lowest amount per employee.

Methods of mining are varied; room-and-pillar, chute-and-crosscut, and an angle system which originated in Washington, are all used. In some cases planes are driven up the pitch, with room-and-pillar workings off the planes. Elsewhere, rooms are driven up the pitch in pairs, with gravity planes to handle the cars. Wherever a high percentage of lump coal is desired the methods followed are not always those producing the cheapest coal. Puncher machines are successfully used in a number of mines. They produce a greater amount of lump at a cost less than that incurred when coal is shot from the solid.

Lump coal has been selling at $3 to $5.50 per ton f.o.b. cars; nut from $2 to $3.75; pea from $0.75 to $1.10; and sludge for any price that could be obtained, some of the coking sludge, however, selling at $1.

Bailey Willis estimates the thickness of the coal measures in the Wilkeson field at 10,000 ft. There are many coal seams in that field; in one locality 10 different seams are being worked, and there are three more that could be profitably mined. One geologist estimates 90,000,000 tons of coal in one 640-acre section.

The main coal field of the state is 56 miles long from north to south, and six miles wide; a large part of it has never been properly prospected, owing to its inaccessibility, the heavy growth of timber, and insufficient demand for the coal.

The opening and equipping of a coal mine in Washington will cost from $2 to $10 per ton of annual output, depending largely upon the cost of development to produce the desired output. Unless the outcrop can be located by surface prospecting the cost of development is hard to determine, even by those best acquainted with the field.

During the past 10 years fuel oil has been selling at coast points from 65c. to 85c. per bbl. Oil has been supplemented by coal to the extent of about 2,000,000 tons annually; hence coal operators, except those producing coke and the better grades of domestic coal, have fared poorly. With fuel oil at $1.50 per bbl. no doubt more coal properties will be opened.

Obviously, mixing is an important factor in combustion. Merely an excess of air in the furnace is not enough; the air must be supplied as near to the surface of the fuel bed as practicable, and be thoroughly mixed with the combustible matter in order that the combustion may be completed in a short time and a small combustion space made effective.—*Bureau of Mines Bulletin No. 135.*

Who's Who In Coal Mining

W. E. E. Koepler

Announcement that W. E. E. Koepler had been elected to the secretaryship of the Pocahontas Operators' Association for the current year, with headquarters at Bluefield, W. Va., was received with pleasure by his many friends in the industry. His sterling personal qualities and unquestioned ability will undoubtedly enable him to carry on successfully the work of the association.

The Pocahontas Operators' Association is comprised of about 50 members and is concerned only with the mining of coal. Its chief object is to speed up production so that the Administration may be saved the embarrassment consequent upon a lack of fuel to coal vessels and run the nation's war industries.

W. E. E. KOEPLER
Secretary, Pocahontas Operators' Association

For the last two years Mr. Koepler has been in charge of financial and kindred advertising on the Philadelphia *Public Ledger*. Previous to that, for a total of about three years, he was with the *Colliery Engineer* and its successor, *Coal Age*. Before that, for a period of seven years, he was connected with *The Black Diamond*, first as advertising solicitor and then as manager and editorial assistant in Philadelphia.

Mr. Koepler was graduated from Westminster College, Fulton, Mo. He is 33 years of age, married, and has two children. Through his long experience among manufacturers of coal mining machinery and equipment, coupled with a fine knowledge of trade and economic conditions, Mr. Koepler is in a position to suggest new ways of winning the war via increased coal production.

Important Zone Modifications

Changes in the bituminous coal zones were made during the week ended April 27 as follows:

Zones A, G, H, N and P—Extension of territory so that producers of smithing coal may ship their product to greatly extended areas. Shipments may be made to all points in the United States west of the Mississippi River, except to North and South Dakota, Minnesota and Wisconsin, north of Zone A by the following mines on the Midland Valley R.R. in Zone A:

Porter, Arkansas Valley Coal Co., Hackett, Ark.; Jones, Backbone Coal Co., Excelsior, Ark.; McMillan, Peter McMillan Coal Co., Excelsior, Ark.; Bassinger, Bassinger Coal Co., Excelsior, Ark.; Hackett, Hackett, Excelsior Coal Co., Hackett, Ark.; Acme, Haskell Coal Mining Co., Stigler, Okla.

Shipments may be made to all points in the United States east of the Mississippi River and south of the northern boundaries of Tennessee and North Carolina and to all points in the United States west of the Mississippi River by the following mines in Zones G and H:

Brookwood, The Alabama Co., Birmingham, Ala.; Blue Creek 3, Tennessee Coal, Iron and Railroad Co., Birmingham, Ala.; Yolande 2 and 3, Yolande Coal and Coke Co., Birmingham, Ala.; Dixiana, Imperial Coal and Coke Co., Birmingham, Ala.; Bradford, Majestic Coal Co., Birmingham, Ala.; Dillworth, Sipsey Coal Mining Co., Empire, Ala.; Etna, New Etna Coal Co., Whiteside, Tenn.; Durham, Durham Coal and Iron Co., Chattanooga, Tenn.

Shipments may be made to all points in the United States requiring westbound movement, provided they are made in returning box or stock cars, by the following mines in Zone N:

Raleigh 3, Raleigh Coal and Coke Co., Cincinnati, Ohio; Winding Gulf 2, Winding Gulf Colliery Co., Cincinnati, Ohio; Cranberry, New River Co., Macdonald, W. Va.; Fire Creek, Fire Creek Coal and Coke Co., Staunton, Va.; Big Q, Quinnimont Coal Co., Quinnimont, W. Va.; Fayette, Fayette Smokeless Coal Co., Fayette, W. Va.; Tams, Gulf Smokeless Coal Co., Tams, W. Va.; Sun 1 and 2, Eccles 3, 5 and 6, New River Collieries Co., Sun, W. Va.; Graham, Tamroy, Oswald, McKell Coal and Coke Co., Glen Jean, W. Va.

Shipments may be made to all points in the United States requiring westbound movement, provided they are made in returning box or stock cars, by the following mines in Zone P:

Mines Nos. 1, 7 and 12, The Consolidation Coal Co., Baltimore, Md.; Kingsland, Maryland Coal Co., New York; 118 and 119, The Consolidation Coal Co., Baltimore, Md.; Jerome, United Coal Corporation, Pittsburgh, Penn.; Zimmerman 4 and 5, Quemahoning Coal Co., Somerset, Penn.; Douglas, Cumberland Coal Co., Baltimore, Md.; Coketon, Davis Coal and Coke Co., Baltimore, Md.; 1, 2 and 5, Blossburg Coal Co., Scranton, Penn.; Maple Hill, East 1, 2 and 3, West 1, 2, 3 and 4, O'Donnell Bros., Morris Run, Penn.; Sonman 2, W. H. Piper Co., Philadelphia, Penn.; Sonman Shaft, Sonman Slope 2, Thorne Neale & Co., Philadelphia, Penn.; Miller 1, Miller Coal Co., Philadelphia, Penn.; Hughes 1, W. H. Hughes & Co. and C. A. Hughes & Co., Altoona, Penn.; Maryland, Berwind-White Coal Mining Co., Philadelphia, Penn.; Henrietta 2, Henrietta Coal Mining Co., New York; Cammos 1, 2 and 3, Heverly Coal Co., Altoona, Penn.; Argyle 1, Argyle Coal Co., Greensburg, Penn.; Logan 4, Logan Coal Co., Philadelphia, Penn.; Lloydell 1, Dexter & Carpenter, New York; Leland 9 and 10, Dexter & Carpenter, New York; Loyal Hanna 6, Loyal Hanna Coal and Coke Co., Philadelphia, Penn.; Ehrenfeld 3, Pennsylvania Coal and Coke Corp., New York; Yellow Run, Mountain Coal Co., Greensburg, Penn.; Standard 1, Standard Coal Co., Altoona, Penn.; Rich Hill 1, Whitney & Kemmerer, Philadelphia, Penn.; Shade Creek, Shade Creek Coal Co., Johnstown, Penn.; Stineman 2, Stineman Coal and Coke Co., Philadelphia, Penn.; Stineman 1, Stineman Coal Mining Co., Philadelphia, Penn.; Bear Rock 1, Bear Rock Coal Co., Lilly, Penn.

Zone B—Extension of territory so that every shipper from Lake docks on the west of Lake Michigan in Wisconsin may ship smithing coal outside of the zone as follows:

That portion of the United States west of the western boundary of North Dakota and South Dakota but not south of the southern boundary of "Zone B," as described in order of March 27, 1918, or subsequent modification thereof.

Zone P—Extension of territory so that producers in northern West Virginia, Pennsylvania and Maryland on the Baltimore & Ohio; Western Maryland and Coal & Coke Ry. (east of Dundon) and their short line connections and all districts north of these lines may ship outside of the zone as follows:

1. Westbound to all points in the State of Ohio.

2. Westbound to all points reached via the carferries of the (a) Grand Trunk Ry., operating between Grand Haven, Mich., and Milwaukee, Wis. (b) Pere Marquette Ry., operating between Ludington, Mich., and Manitowoc, Wis., and between Ludington, Mich., and Milwaukee, Wis. (c) Ann Arbor Steamship Co., operating between Frankfort, Mich., and Manistique, Mich., between Frankfort, Mich., and Menominee, Mich.; between Frankfort, Mich., and Kewaunee, Wis.; and between Frankfort, Mich., and Manitowoc, Wis.

All shipments must be made in returning box or stock cars.

Zone D—Extension of territory so that producers in Indiana many ship outside of the zone as follows:

Westbound to all points reached via the carferries of the (a) Grand Trunk Ry., operating between Grand Haven, Mich., and Milwaukee, Wis. (b) Pere Marquette Ry., operating between Ludington, Mich., and Manitowoc, Wis., and between Ludington, Mich., and Milwaukee, Wis. (c) Ann Arbor Steamship Co., operating between Frankfort, Mich.,

and Manistique, Mich., between Frankfort, Mich., and Menominee, Mich.; between Frankfort, Mich., and Kewaunee, Wis., and between Frankfort, Mich., and Manitowoc, Wis.

Shipments are limited to those which can be made in returning box or stock cars.

Zone F—Extension of territory so that producers in Virginia along the Louisville & Nashville R.R. only; in eastern Kentucky along the Louisville & Nashville R.R. and the Cincinnati, New Orleans & Texas Pacific Ry. and their short line connections; and in Tennessee, along the Cumberland Valley Division of the Louisville & Nashville R.R. and along the Middlesborough R.R. may ship outside of the zone as follows:

Westbound to all points reached via the carferries of the (a) Grand Trunk Ry., operating between Grand Haven, Mich., and Milwaukee, Wis. (b) Pere Marquette Ry., operating between Ludington, Mich., and Manitowoc, Wis., and between Ludington, Mich., and Milwaukee, Wis. (c) Ann Arbor Steamship Co., operating between Frankfort, Mich., and Manistique, Mich.; between Frankfort, Mich., and Menominee, Mich.; between Frankfort, Mich., and Kewaunee, Wis.; and between Frankfort, Mich., and Manitowoc, Wis.

Shipments are limited to those which can be made in returning box or stock cars.

Zone N—Extension of territory, so that the producers in the Pocahontas, Tug River and New River low-volatile coal-producing districts of West Virginia and Virginia along the Norfolk & Western, Chesapeake & Ohio and Virginian railways, and their short line connections, in the Clinch Valley high-volatile coal-producing districts in Tazewell and eastern Russell Counties, Virginia, along the Norfolk & Western Ry., and in the high volatile district along the Virginian Ry. may ship outside of the zone as follows:

That portion of the States of Maryland and Delaware, located on and within the following boundary lines: On and south and east of a line coincident with the eastern and southern bank of the Chesapeake Bay and the Choptank River as far as Cambridge, Md.; thence coincident with the Philadelphia, Baltimore & Washington R.R. from Cambridge, Md., to Seaford, Del.; thence coincident with the Philadelphia, Baltimore & Washington R.R. from Georgetown, Del., through Lewes to Delaware Bay.

Extension of territory so that producers in the Pocahontas, Tug River and New River low-volatile coal-producing districts, in the States of West Virginia and Virginia along the Norfolk & Western, Chesapeake & Ohio and Virginian railways and their short line connections and in the Clinch Valley high-volatile coal-producing districts in Tazewell and eastern Russell Counties, Virginia, along the Norfolk & Western R.R. may ship outside of the zone, in returning box or stock cars, as follows:

Westbound to all points reached via the carferries of the (a) Grand Trunk Ry., operating between Grand Haven, Mich., and Milwaukee, Wis. (b) Pere Marquette Ry., operating between Ludington, Mich., and Manitowoc, Wis., and between Ludington, Mich., and Milwaukee, Wis. (c) Ann Arbor Steamship Co., operating between Frankfort, Mich., and Manistique, Mich.; between Frankfort, Mich., and Menominee, Mich.; between Frankfort, Mich., and Kewaunee, Wis.; and between Frankfort, Mich., and Manitowoc, Wis.

Zone L—Extension of territory so that producers in the State of West Virginia, along the Kanawha & Michigan, Kanawha & West Virginia, Coal & Coke (east of Dundon) railways and their short line connections may ship outside of the zone in returning box or stock cars as follows:

Westbound to all points reached via the carferries of the (a) Grand Trunk Ry., operating between Grand Haven, Mich., and Milwaukee, Wis. (b) Pere Marquette Ry., operating between Ludington, Mich., and Manitowoc, Wis., and between Ludington, Mich., and Milwaukee, Wis. (c) Ann Arbor Steamship Co., operating between Frankfort, Mich., and Manistique, Mich.; between Frankfort, Mich., and Menominee, Mich.; between Frankfort, Mich., and Kewaunee, Wis.; and between Frankfort, Mich., and Manitowoc, Wis.

Zone C—Extension of territory so that producers in Illinois, until Sept. 30, may ship outside of the zone as follows: To all points located on the line of the Minneapolis & St. Louis R.R. between Norwood, Minnesota and Minneapolis.

Extension of territory so that producers in Illinois may ship, from Oct. 1 to Mar. 31, outside of the zone as follows:

That portion of the States of South Dakota, Minnesota, Iowa and Wisconsin, located on and within the following described boundary lines: On and south and east of a line coincident with the Chicago, Milwaukee & St. Paul Ry., from Hudson, S. Dak., to Sioux Falls, S. Dak.; thence coincident with the Great Northern Ry., through Pipestone, Minn., to Granite Falls, Minn.; thence coincident with the Chicago, Milwaukee & St. Paul Ry., through Benton Junction to Norwood, Minn.; thence coincident with the Minneapolis & St. Louis Ry., to Minneapolis, Minn.; thence coincident with the Minneapolis, St. Paul & Sault Ste. Marie Ry., through Chippewa Falls and Abbottsford to Amherst Junction, Wis.; thence coincident with the Green Bay & Western RR., to Kewaunee, Wis.

From Oct. 1 to Mar. 31, producers in Vermilion County, Illinois, who are operating mines along the Wabash R.R., may ship outside of the zone as follows:

All stations and points of delivery located on the Wabash Ry. within the State of Indiana, including all points of delivery within switching limits on all other railway lines connecting therewith.

From Oct. 1 to Mar. 31, producers in Sangamon County, Illinois, having operations along the Cincinnati, Indianapolis & Western R.R. may ship outside of the zone as follows:

All stations and points of delivery located on the Cincinnati, Indianapolis & Western R.R. as far east in the State of Indiana as to and including Indianapolis, including all points of delivery within the switching limits of other railway lines connecting therewith.

The foregoing orders are not to apply to railroad fuel, to shipments to Canada or Mexico, or to shipments by inland waterways other than the Great Lakes.

Deadlock in Railroad Fuel Controversy

Until the Director General of Railroads has had an opportunity to go into the railroad fuel matter personally, there is every reason to believe that the deadlock which now exists will remain unchanged until that time. Like the situation on the western front, however, Fuel Administration officials feel that they are winning in being able to halt the ambitious plans of the railway purchasing agents and of their chief, John Skelton Williams. In case they should be compelled to pay the Government prices for coal, the railroads expect immediately to go before the Interstate Commerce Commission with a request that an increase be granted in freight rates.

Weekly Production Statistics

Bituminous coal production during the week ended Apr. 20 was 11,230,000 tons. This is an increase of 3.4 per cent. over the week preceding and brings production back to the normal level. Telegraphic advices covering the week ended Apr. 27 show that even a greater production was obtained during that week.

Anthracite forwardings for the week ended Apr. 20 were 39,147 cars, which is the best showing made in April. Beehive-coke production for the week under review was 655,000 tons, a decrease as compared with production in the week preceding. Byproduct coke production was 471,013 tons. Byproduct production was at 88 per cent. of the capacity of the ovens.

The figures given above are taken from estimates made by C. E. Lesher, the geologist in charge of coal statistics for the United States Geological Survey.

Increase in Price on Export Coke

Authority to add 60c. to the Government's export price of coke has been granted by the Fuel Administration. The price is to apply on coke shipped to a possession or dependency of the United States. In addition to the 60c., the operator may add the cost of transportation from the ovens to ship side. No coke is to be exported, however, without special permit. Exports from the Pacific Coast of coke manufactured east of the Mississippi also take the 5 per cent. increase.

More Changes in Coke Prices

New coke prices have been announced by the Fuel Administration as follows: Made at Coalmont, Tenn.: Blast furnace, $7.25; 72-hour or selected foundry, $8.25.

Made from Pratt seam coal in Alabama: Blast furnace, $8; 72-hour selected foundry, $8.75.

Made in Marion and Harrison Counties, West Virginia: Blast furnace, $6.25; 72-hour selected foundry, $7.25.

Made in Barbour and Randolph Counties, West Virginia: Blast furnace, $6.75; 72-hour selected foundry, $7.75.

Made in New Mexico: Furnace and smelting, $8.50; 72-hour selected foundry, $9.50.

Railroad Administration Orders Discontinuation of Statistical Bureaus

By ordering discontinued the statistical bureaus of the various railroads, the Railroad Administration is taking a step which disorganizes the whole statistical system of the Fuel Administration. It is from these bureaus that much important statistical data are obtained on which the Government depends in compiling the figures which enable the public to know at all times the exact status of coal production and movement.

The order will abolish the Bureau of Railway Economics, the Bureau of Tidewater Coal Statistics, Ohio Bureau of Coal Statistics, Illinois-Indiana Coal Traffic Bureau, St. Louis Coal Traffic Bureau, Buffalo District Coal Traffic Bureau and others. Some of these bureaus have been in existence for 25 years.

Since it will be necessary for the Geological Survey or for the Fuel Administration to take over the statistical work which has been done by these bureaus, it would mean no saving in expense to the Government. It would, however, disrupt the work which has been carried on for many years in a very successful manner.

Price Changes for Virginia Mines

New prices for Virginia mines have been announced as follows: Mines in Lee County operated by the Darby Coal Mining Co.; Black Mountain Mining Co.; Virginia Lee Co.; Old Virginia Coal Co.; United Collieries Co.; Benedict Coal Corporation and the Imperial mine of the Virginia Iron, Coal and Coke Co.: Run-of-mine, $2.65; prepared sizes, $2.90; slack or screenings, $2.40.

Brief Washington Notes

D. C. Botting, of Seattle, has been appointed district representative of the Fuel Administration for the state of Washington.

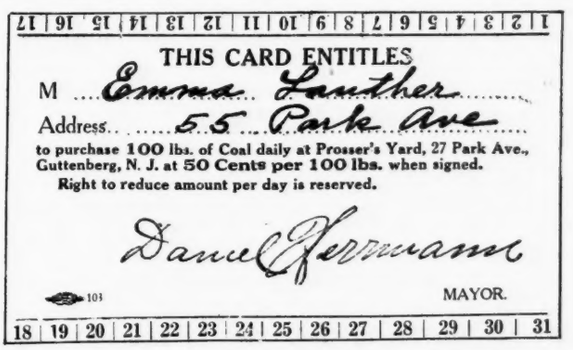
Formal denial has been made by Dr. Garfield of the report that the Fuel Administration was considering moving to Pittsburgh.

Representatives of the commercial florists of the country have agreed with the Fuel Administration to curtail their use of fuel by 50 per cent.

The lightless night order has been suspended until Sept. 1. The action was taken by Dr. Garfield, at the request of the Liberty Loan Committee. Since the change in time by the daylight saving law the use of electric signs has been for a shorter period and was an important factor in influencing the suspension order.

Coal Cards Used Near New York City

During this winter, Guttenberg, N. J., on the Hudson River cliffs just across that river from New York City, being extremely short of domestic fuel, distributed coal by the coal card, of which the following is a reproduction. The Mayor, Daniel Herrmann, for some time received four to eight tons of coal a day from


1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
THIS CARD ENTITLES
M Emma Lauther
Address 55 Park Ave
to purchase 100 lbs. of Coal daily at Prosser's Yard, 27 Park Ave., Guttenberg, N. J. at 50 Cents per 100 lbs. when signed.
Right to reduce amount per day is reserved.
Daniel Herrmann
103
MAYOR.
18 19 20 21 22 23 24 25 26 27 28 29 30 31

Burns Bros. at the docks in West New York, formerly used by the Herbert Coal Co. It had been found that some persons came three and four times a day and so got more than their share, so the cards were adopted. Thus hoarding in the time of severe shortage was prevented. No back orders were filled, only 100 lb. being sold on any one card per day. The distributing times were so arranged that the men working at factories had ample time to get their share. Coal tickets could be purchased on the "workless" Mondays as the Mayor's office was kept open.

EDITORIALS

Placing Responsibility

IF THERE is a serious fuel situation in this country next winter, the public will immediately seek to place the blame upon someone. Last winter Dr. Garfield was the object of censure, and to him was attributed responsibility for all the sorrows of the consumer. Although he did not come into office until the end of August, when the most favorable season of the year for storing coal had already passed, the press of the country repeatedly carried the statement that the Fuel Administrator during the summer months had advised against storing coal.

Now that the Administration is urging all consumers to purchase as much coal as they can possibly secure to fill their requirements, and since attention is called to the fact that production so far this year is far less than the estimated needs, certain elements are already taking advantage of this situation and of these warnings to declare that the fuel administrators are seeking already to pave the way for the failure that they believe inevitable, and to shift the blame onto other shoulders.

Such critics assume that if we have a coal famine the fault must lie entirely with the Fuel Administration. They pretend to ignore what must be evident to everyone, that the Fuel Administrator and his associates do not control the railroads and have no power to purchase and place locomotives and cars in the coal fields where they are so badly needed. When the time arrives that empty cars are placed on the sidings at our mine tipples, and these cars are not loaded immediately with coal for prompt shipment to market, then the Fuel Administrator and the coal operators have failed and public condemnation of them is justified.

Let us briefly view the situation in the United States today as a whole. In the West the mines are not operating because in many districts they lack orders; the reason for this sorry situation is that the railroads refuse to commence now purchasing and storing coal for use next winter. The Fuel Administration has urged the necessity of the railroads making purchases now when the mines need such orders to keep them operating. But Mr. Williams says, "No, the situation is unsettled, we'll buy coal later," and in the meantime dozens of mines are idle, and the operators have the problem of their lives in retaining miners through this period of idleness. In the East many mines have been shut down during past weeks, because of a lack of transportation facilities. And here again the railroads are the transgressors. The time may come, and it may be soon, that the operators and the Fuel Administration will be to blame for failure to meet the situation, but so far that moment has not arrived; and whatever defeat we have met in carrying out our 1918 program up to the present time, has been due to the weak offensive and lack of coöperation on the part of our National transportation system.

One-third of the present year has passed, and the production of coal is 17,000,000 tons less than the output conservatively estimated as necessary to meet urgent requirements this year. During the remaining eight months of 1918 it will be necessary, therefore, to make up this shortage, and if we fail to accomplish this end, the curtailment of industrial activity next winter will be more severe than any contraction of effort that has so far occurred.

Give Away What They Can't Sell

THE *United Mine Workers Journal* is to be given to each of the 400,000 affiliated members of the union. It will thus have a wonderful circulation, and its power for good or evil will be immensely increased. Believing that the average union man still thinks well of his employer and does not like to see him scolded in every issue of his paper, we do not wonder that the *Journal* has not been a marked success.

The good-natured workingman has been a little troubled at the stand taken by his industrial organ. He likes, as we all do, to scold on occasion, and often he finds that occasion without much diligent hunting; for operators and their agents are both pleasantly and unpleasantly human. But on the whole the mine worker is a good-hearted fellow, and his soreness does not last very long. For this reason he does not like the paper of his leisure moments to be so full of bitterness and so sparing of facts. The union has a lot of correspondents available and, if it pleased, its summary of the recent labor events might be an unqualified treat. Furthermore, many a real inequity could be removed if conservatively presented and incisively analyzed.

We believe the mine workers should occasionally look at an operator's publication, and we are sure that operators should often look at the publications of mine workers; but we doubt if the *United Mine Workers Journal* has its due influence on the employer. He realizes that it has little else but criticism of him, and that it is unfair to his cause.

The union forgets, just as the operator too often forgets, that the majority of union men are the best type of red-blooded, hard-headed, honest chaps. They will stand by the right. They will applaud the truth. A few of the rabid who know nothing but vituperation will object to anything which verges on altruism appearing in the columns of the paper they read. But this is a new era. The employers' papers are being humanized, and it seems time for the workmen's papers to drift magnificently into the same current.

The editor of the *United Mine Workers Journal* has recently offered his body to Great Britain for service against the foes of America. When he returns, will he be any less courageous in the affairs of his mind? Will he continue to be a mere partisan after self-sacrificing work in the world army? We think not.

Merely as a business proposition it seems a mistake to continue on the old track in the publication of the organ of the mine workers. The paper will henceforth, so to speak, be a "house organ." No one will be able to tell whether it is really read and approved by those who receive it, for it will be delivered alike to the pleased and to the hostile. The members of the house will have to take it whether they want it or not. But this we do know. It has been run hitherto at a loss, which for 1915 alone reached $65,800. It has reached only one-tenth of the members of the union. Clearly there is something amiss in the editorial policy—not in editors, be it noted, but in their policy only.

Line up the *Journal* with the conscience of the union; line it with the sentiments and the actions of the principal labor leaders; line it with the trend of twentieth century thought and fill it with facts—and there would be no difficulty in trebling the circulation on sheer merit. The *Journal* has had a trend toward liberalism and education, but the trend has been slower than might have been hoped. Now is the time to accelerate that trend. We wager that the great conscience of the miners of America, whether in war or in peace, will respond with alacrity to the new and better spirit.

If our readers will bear with us, we will make a confession. We hope that we see in the appointment of Robert H. Harlin as acting editor a determination toward a more constructive policy. We wish to gain credit for suggesting that policy, but we cannot deny that we believe that Mr. Harlin "saw it first."

Relative Value of Labor and Capital

THE American laboring man, with his keen insight into matters, is little disposed to forget the part that capital has in promoting the service of labor. It is clear that though machinery cannot be run without labor, labor is at a loss to produce without machinery and that the designer of that machinery, and the man who supplies that machine, is worthy of his reward.

Labor might pile wood on its back and tie it with withes of stripped bark and carry it into market. It would be entitled to regard that as a service to which it exclusively contributed. It would be typical of the cruel and, as we now regard it, unnatural suffering which goes with such labor as is compelled to operate without the aid of capital. Such labor is full of pain, sweat and inadequate accomplishment. When capital arrives, it smoothes the road, it supplies rails and cars to carry the burden, furnishes a locomotive to pull it, and the draft on labor is reduced. Who shall say that, in such an example as this, capital has not performed even the greater part of the service? While a human hand turns the throttle, it is the unseen steam that moves the engine.

We are learning gradually that reconstruction, no matter how radical, cannot mean the extinguishment of capital. It will at most only involve an end of private ownership. The workman will never be allowed to use all he produces. Some part of his work will have to be diverted to the development of the means for new and advanced methods of production, such as will make labor in the future more effective.

Profits are the seed corn of labor. There can be no progress without them. The workman dresses himself, steps on the car, or the train, in the morning and comes to his home at night and says labor has provided all these things. But capital has coöperated more than labor. Were it not for capital, labor would be living like a cave bear, and surely no one would be willing to go back to that state of affairs. We shall always be obliged to put by and put by, or we shall cease to progress.

Had we put by more in the past our feet would not have been so terribly entangled by our limitations as we now find them to be. To many of us it has always seemed our duty to spend as much as we made. Everyone was entitled, we declared, to receive and expend all that his hands produced. As a result there has been a limitation of development, waste and inefficiency. We have not measured up to our capabilities, partly because our labor is untrained to the point desired and partly because our capital savings have not been large enough to provide the necessary tools for our hands.

The Corporate and the Aggregate Ego

THE GOVERNMENT of the United States represents the corporate action of its citizens. It is said that prices made to this corporate ego should be reasonable, presumably because it is corporate. On the other hand, there is no tendency to regulate nearly so closely the profits on goods sold to the individual, and in many cases prices are not regulated at all.

It seems quite reasonable to declare that where prices are regulated they shall be the same to the corporate ego as to the aggregate ego. The same people pay that price either corporately or in the aggregate. If a certain price is the right price for the individual to pay it is the right price for the Government railroads to pay. If the buying of the individual is to be speeded the buying of the Government railroads should likewise be undelayed. If the individual should be patriotic, then the Government should not be lacking in patriotism.

A fair price should not cause the Government railroads to balk and the Government should not grant privileges as part compensation for paying an unfair price. The aggregate ego gets no consideration in most of its purchases. The price of dry goods, for instance, is entirely unregulated. The stores mark these goods upward continually. The same goods remaining unsold at the end of one day are marked up before they are placed on sale the next. The aggregate ego has to pay the bill. But the corporate ego is balking at paying prices which that same corporate ego has already declared are reasonable and necessary for the maintenance of production. No one can see why this should be.

The railroad administration (the corporate ego) is utterly indifferent to the true interest of the people (the aggregate ego). The railroads can always get coal winter and summer. All that it is necessary to do is to seize the fuel on the tracks. Next winter the aggregate ego may go cold, the factories of the aggregate ego may be closed, but the corporate ego will be warmed and be active, being supplied with fuel by its unlimited powers of condemnation.

THE LABOR SITUATION

EDITED BY R. DAWSON HALL

General Labor Review

The world is at war; therefore this is no time for domestic readjustments. With this in ever present view we have repeatedly spoken about the evils of the attempted unionization of nonunion territory at this crucial period. We have regretted that the union did not everywhere show an accommodating spirit, worthy of the occasion, such as would be exhibited if it forbore strife wherever nonunion mines are operating.

On the other hand, fairness would have caused us to express opposition to any change in attitude toward "ironclad" contracts. These documents forbid unionization to employees who sign them to such an extent that union leaders who permit locals to be formed where such contracts have been signed subject themselves to imprisonment. But as the matter was at issue before the courts it seemed well to say nothing.

HITCHMAN COAL AND COKE CO. WITHDRAWS SUIT

We cannot forbear, however, from expressing ourselves as greatly pleased that the Hitchman Coal and Coke Co., probably by reason of patriotism, has decided to withdraw its long-drawn injunction suit against the union. We congratulate the Hitchman officials on their decision. A long and expensive action had been taken, and success appeared likely to be secured. No one knows better than those who conduct such proceedings how the striving for success becomes almost a greater incentive for continuance of effort than the object aimed at.

It is the more to the credit of the Hitchman Coal and Coke Co., therefore, that on Apr. 23, after long and diligent striving, that company decided to discontinue its action, an action older by far than our entry into the war. May the union learn moderation from the considerate action of its most bitter opponent. The world is at war, and it is time for a profound peace behind the battling lines.

AND ALL IS PEACE BEHIND THE BATTLING LINES

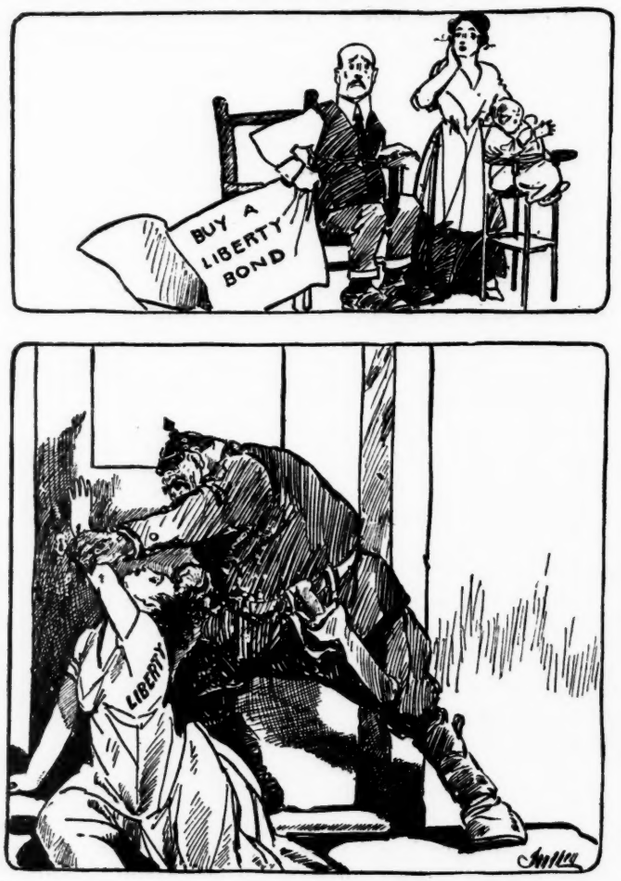
The anthracite region is wrapped in an industrious silence broken only by the rattling of the coal in the spirals and the slate pickers and by the sound of the plunging of the jigs. The operators are said to be planning to stimulate the patriotism of the mine workers, if possible, to even greater degree by a lecturing campaign in which the cruelty of the Germans and the rapacious purposes of the German government will be laid bare. The anthracite region is the abode of a fervent patriotism already. Those who direct the campaign will do well to avoid inflaming the people beyond control, for while some need the excitement of such a recital, others rather require a reasoned appeal for moderation.

Central and western Pennsylvania have no labor troubles outside of some action, as in Johnstown, against those who will not buy Liberty Bonds. West Virginia has only a small strike to report. It took place at Brown, in Harrison County, a point which might be described as in the Clarksburg field, though a little remote from that city. It arose from dissatisfaction with the scales at the mine and was of only short duration.

In our issue of Mar. 9, page 464, appeared an account of the demands of the miners in Belmont, Harrison and Jefferson Counties for a differential for those who were working in the rider of the No. 8, or Pittsburgh seam. Because of the thinness of that measure, which is known as the No. 8A, the miners thought that a better rate per ton should be granted.

Consequently, on Apr. 24 a joint conference was held in Bridgeport between the operators and the officials of subdistricts Nos. 5 and 6, the meeting being convened in the offices of the United Mine Workers. The operators took the stand that the matter must be submitted to President Wilson for decision. However, on Apr. 25, John Moore, the president of United Mine Workers in Ohio, announced that a satisfactory wage scale had been arranged, but that the terms were being kept secret, as to reveal it "would only stir up dissatisfaction among the other men."

In Alabama the unionization of the coal mines is spreading to the iron mines, where the conditions of operation are not at all dissimilar from those in coal mines. The unionization there also caused strikes and threatened more. At one time six companies were fearing a suspension of operations. Wage increases have been granted.



WHY WE ARE ALL BUYING LIBERTY BONDS

Illinois is beginning at last to realize that we must beware of trying to fight the Germans here instead of "over there." The measure of peace and order here is likely to be the measure of success in France. Only by quietly and industriously working here can we put arms into the hands of our boys in the trenches. Reference is made in another column of this department to the developments in the Prager case and to idling at the "Old Ben" mine and to the appropriate action taken by the Federal authorities.

In Washington State, Sam Caddy has been elected district member of the international board of the United Mine Workers of America, and Ben Farrimond becomes vice president of the district. The vacancy which Caddy fills arises from the appointment—an admirable appointment in our

belief—of Robert H. Harlin to be international statistician of the United Mine Workers and also acting editor of the *United Mine Workers' Journal.* Farrimond fills the unexpired term of Ernest Newsham, who retired from the vice presidency to become secretary-treasurer of the district when William Short resigned to become president of the Washington State Federation of Labor. A regular election will be held next November to fill all district offices.

The suspicions of the Nova Scotia mine workers have been aroused and they are willing to believe anything about their employers. As we recorded they first believed that the operators were deliberately subsidizing local papers to tell about an Allied retreat in France which these mine workers, alone of all the world's population, refused to accept as true. Now they claim that the labor embargo in Newfoundland is being supported by their employers with the idea of making the necessity for importing coolie labor appear more imperative. Reference is made to this in another part of this department.

Labor Shortage at Hard Coal Mines

The unfriendly attitude toward foreigners in the anthracite region in relation to the purchase of Liberty Bonds was discussed last week in this department at some length. This attitude is highly important because of the extreme shortness of labor in which not only the coal operators, but the boards of trade also, are interested. The industrial bureau of the Scranton Board of Trade recently passed a resolution asking that steps be taken to secure the release of 16,000 Italian anthracite miners fighting on the Italian front on condition that they would return to America and dig coal. It was suggested that an equal number of Americans might be sent over to Italy to fight in the Italian lines, in this manner testifying to the Italian people our hearty coöperation with them in their efforts to keep their hearths and homes inviolate from the foreign foe.

The bureau condemned the misleading advertising of the outside employment agencies, and moved that the local newspapers refuse to print advertising which had for its purpose the depletion of the scant labor of the anthracite region.

However there has been some improvement in the number of men employed in the anthracite mines, though the numbers are far below the 177,000 who were working before the war first commenced. The anthracite region has done more than its share in supplying men to the army, in fact to all the many armies. Enlisting freely, so freely in places that more men enlisted than the quota of the region required, the draft nevertheless took more men away. Thus it has been that the anthracite region which might have been, and indeed should have been, spared did more than twice its share. However, active colonization work and increased wages have improved matters a little as the table shows:

Occupations	Men Employed Sept. 17, 1917	Men Employed Feb. 18, 1918	Change
Miners	42,020	42,638	Increase 618
Miners' laborers	23,018	22,069	Decrease 949
Company men (inside)	40,427	42,695	Increase 2,268
Company men (outside)	40,940	42,483	Increase 1,543
All other employees at collieries	5,671	5,289	Decrease 382
Total	152,076	155,174	Increase 3,098

The Liberty Loan situation does not appear to have occasioned any actual strikes, although such strikes have often been threatened. The attempt to secure an adherence to the union somewhat similar to the adherence demanded to the nation did, however, cause the Luke Fidler colliery to close down. Here not more than half the men had paid their monthly dues and a strike was entered into to bring the delinquents into line. On two occasions in the week before last the Mammoth Locust Gap colliery belonging to the Philadelphia & Reading Coal and Iron Co. was closed by button strikes, and several independent collieries were similarly laid idle.

The mine workers appear to think that the operating concerns are becoming more favorable to the institution of the check-off which would make the nonpayment of dues at least less frequent. Many a man would hesitate to notify the company employing him that he would not authorize it any longer to contribute part of his pay to the union, whereas he would think less of omitting to make payment of his dues. However, the idea of the mine workers is a check-off system which would contain closed-shop provisions. The leaders of the mine workers have been urging their members to compel or urge solidarity in union support in some other way than by button strikes, for striking reduces the output of coal.

Bloomer Girls Appear at Mines

Several graduates of the Nesquehoning High School on Apr. 23 took positions at the mines of the Lehigh Coal and Navigation Co., purposing to act as timekeepers, weigh-scale tenders, switchtenders and in other capacities. They wore bloomer uniforms and middy blouses, while caps covered their hair, the outfit being supplied by the company.

Apparently the union objected to women thus assisting in the mine work, despite the shortage of mine workers in the anthracite region, for Thomas Kennedy, president of the United Mine Workers of America in the Seventh district, has announced that S. E. Button, the chief of the Pennsylvania Department of Mines, agreed Apr. 27 to issue orders against the employment of girls in and around anthracite mines.

Lackawanna Gives Bond Bonuses

The Delaware, Lackawanna & Western R. R. Co. has been distributing Liberty-Bond bonuses to all its employees who are on a monthly salary and who receive less than $3000 a year. This is in accord with an arrangement made last December. The whole distribution amounts to $625,000. Employees receiving $600 a year and less get a $50 bond; from $601 to $1200 a year, a $100 bond; from $1201 to $2000 a year $150 of bonds; from $2001 to $3000 $200 of bonds. The bonds given are of the second 4 per cent. issue.

It will be noted that this increase is given to salaried men only, who have probably not prospered as greatly in recent months as have the day workers and miners. As a proof that miners in general are doing well it is recorded that Schuylkill County has been divided into five sections for internal-revenue collection. It used to form a single district, but the number of miner taxables has made it necessary to make this more minute division.

Lack of Safety Used as Strike Excuse

The "Old Ben" mine, No. 11, at Christopher, had an explosion on Nov. 29 in which 17 men were killed. The men complained that there was a lack of safety appliances and demanded the installation of several devices. These were provided by the company, and on Feb. 1 the inspectors and Federal officials announced that the mine was in condition for a resumption of work. But the mine workers refused to return to work, giving excuses that the Government investigators declare "trifling and frivolous."

On Monday, Apr. 15, Robert Childs, a special assistant of the United States Attorney-General, and Assistant District Attorney McCawley Baird of East St. Louis went to Christopher and a mass meeting was held Tuesday night, and an appeal was made to the men, on patriotic grounds, to return to work, but no satisfactory assurances were received. Another meeting was held on the night of Apr. 25 and the miners were given plainly to understand that they would be tried immediately for conspiracy to diminish the fuel supply unless they returned to work. Next morning they resumed.

The mine normally employs about 500 men and is a thoroughly well-equipped operation, the property of the Old Ben Coal Corporation. With an adequate mining force it would easily produce 4500 tons a day. Recently there have been a number of "loyalty" demonstrations at Christopher and adjacent mining towns, which were said to have

been made by idle Christopher men. The so-called "loyalty" outbreaks are just now under suspicion. Much of the loyalty in southern Illinois is mere hoodlumism such as Samuel Johnson knew so well how to stigmatize.

Mine No. 3, Edwardsville, Madison County, has been closed for several days as there are differences between the owners and the operators. The miners are willing to continue at work if their wages are guaranteed.

Illinois Becomes Less Rabid

Illinois is recovering from its rabid attitude toward alien enemies. The state is not going to allow race riots against foreigners, or negroes either, for that matter. Brigadier-General Wells of the Illinois National Guard and two members of his staff have just completed a tour of inspection through the southern Illinois coal fields, and Wells assured the officials of the various counties that troops would be sent into the district if there were any further disturbances.

The Madison County grand jury has shown that it has no sympathy with lynching by returning 12 indictments charging murder and four indictments charging malfeasance. Of the 12 men charged with the murder of Prager eight are mine workers. Of the four Collinsville policemen charged with malfeasance three were at one time similarly engaged.

Five of the men charged with murder were held by the coroner's jury and have been in jail since the inquest. They are Joseph Riegel, Wesley Beaver, William Brockmeier, Richard Dukes, Jr., and Enid Elmore. Six others were arrested under the indictments: John Hallsworth, Calvin Gilmore, Charles Cranmer, Frank Flannery, James de Mattias and Cecil Larremore. The twelfth man had not yet been arrested at last reports from our correspondent. The four policemen are Fred Frost, Martin Futcheck, Harry Stephens and John Tobnick. Tobnick has resigned from the force, but the other three, after capiases were served on them, gave bond and were allowed to remain on duty.

Moses Johnson, subdistrict board member of the United Mine Workers, who has charged that Prager was disloyal, but has failed to substantiate his charge, conferred with the miners after they were arrested and promised to obtain bond for them. Though warrants for the arrest of the mine workers were placed in the hands of deputy sheriffs on Liberty Day, the authorities did not take action as they feared there would be a riot should the men be arrested during the patriotic celebration. It appears that the authorities are still somewhat afraid to take appropriate action. Perhaps they are not to be blamed, but certainly the spirit of the citizenry of Collinsville is subject to the gravest of criticism.

While the grand jury was still investigating the Robert P. Prager lynching, the local union, unabashed at the crime committed, met and fined John Tonso, Paul Schrieber and Joseph Robino $50 each because they indorsed the application of Prager when he applied for membership in the union. The specific charge was that they had violated the constitution of the Illinois branch of the United Mine Workers by certifying that Prager was an experienced miner though he had only had 28 days experience in the mines. One would have imagined that these Collinsville mine workers would have tried to forget the horrible tragedy except insofar as they combined with the authorities to bring to justice all those whom they knew were guilty of that highly criminal offense.

It seems like a gruesome joke to fine anyone for assisting a postulant to gain admission to such an unworthy local union, membership in which could scarcely be regarded as a privilege or an honor. The local belatedly has arrived at some niceness in its selection among postulants, though the choice is apparently not one based on moral qualifications. If this local had been as precise at an earlier date in demanding moral qualifications as it is now in requiring experience, Prager would not have lacked defenders when the assault was made on him in the village streets of Collinsville.

Tennessee Company Submits to Pressure

The Tennessee Coal, Iron and Railroad Co., believing in running a nonunion operation, has strenuously refused till recently to accept the recommendation of the United States Fuel Administration, because it regarded that document as tantamount to a recognition of the union. The company argues that it has always been a good employer, that in the matter of providing good homes, healthy conditions and safety it has set the pace in the South, just as the H. C. Frick Coke Co. and the United States Coal and Coke Co., its related concerns, have set the pace in the North.

But the union has pressed for the coöperative bargain and the Fuel Administration has granted it, not indeed to the union as a whole, but to the men employed at any one plant. These men when organized by the United Mine Workers of America and financed by them are not to be distinguished from that organization. They are Company J, let us say, of the United Mine Workers industrial army. The union does not disguise it and the T. C. & I. is not to be blamed for realizing that in recognizing their men they really recognize the union in which their men belong.

The Tennessee company therefore for a long time refused to submit to the recommendation. Now they accept it without signing it. They merely promise compliance. One might suggest that as their word is as good as their bond, they might just as well have signed as have refused to do so. Probably, however, they hoped that their compliance would not be recorded and that it would be for them merely a matter between Dr. Garfield and themselves. However pressed by George Huddleston, the representative in Congress from the Ninth Alabama District, which covers Jefferson County, Dr. Garfield, about Apr. 17, revealed that the Tennessee company was committed to the Fuel Administration's recommendation. The difficulties between the company and its employees will in future be arbitrable by Judge H. C. Selheimer, of Birmingham.

The terms of the recommendation to which the company adheres, and which were published in our issue of Jan. 19, were as follows, the last item being finally determined by the agreement of Apr. 20 recorded last week in this department:

The right of employees to belong to any union without discrimination being used against them by the employer. Reëmployment of men discharged for joining the union. Recognition of mine committees. Right of men to join in peaceful assembly. Creation of tribunals for the adjustment of disputes. Right of men to place checkweighman on tipples and right to have wage of said checkweighman collected in manner prescribed by employees. Establishment of the eight-hour workday. Readjustment of tonnage and yardage rates July 1, 1918.

Nova Scotia Miners Fear Coolie Labor

An order in council has been passed by the government of Newfoundland forbidding unmarried men between the ages of 20 and 35 from leaving that "Ancient Colony." This seems an appropriate way of conserving for war service the man power of the colony, but it so happened that when it was passed a number of agents of the Amalgamated Mine Workers of Nova Scotia were busy recruiting men for the mines in that province of the Dominion of Canada. The order in council appeared, and may possibly have been, directed at these labor emissaries.

It seems, however, that the "Amalgamated" saw in the action of the council the long arm and hand of the Dominion Coal Co. Could it be possible, they declared, that the Dominion Coal Co., anxious to secure coolie labor, is unwilling that its needs should be supplied by our kindred in Newfoundland? Is the Dominion Coal Co. seeking to embargo Newfoundlanders so as to make the introduction of Chinese the only possible alternative? The suspicious mine workers suspect some such explanation is back of Newfoundland's action. Yet what is more natural than that a government like Newfoundland, which is establishing conscription should prohibit the migration of its citizens even to the provinces of an allied government.

DISCUSSION BY READERS

Buying Liberty Bonds

Letter No. 1—Reading the editorial entitled "Do We Really Want to Win the War?" *Coal Age*, Mar. 30, p. 596, set me to thinking; and I wondered how many of us, here in America, are in dead earnest and willing to make the sacrifices that the occasion demands. Many have sent their sons to the war with the strong expectation that they may not see them again. That is real sacrifice; but, beyond this, few of us are feeling the burden of the war.

It is no material sacrifice for a man to buy Liberty Bonds, which is a good and safe investment; and, yet, we find many men in our mining camps who refuse to buy a Liberty Bond and offer the excuse that it helps to kill their sons and brothers.

One cannot but sympathize with the foreigner who has left his wife and family in the old country and come to this land seeking a fortune, in the hope of going back to his homeland with means sufficient to buy a farm. As the war goes on, however, this excuse grows less acceptable every day.

In the selling of the first Liberty Bonds, I took an active part. Judging from my own experience in this work, there are scores of foreign-speaking men who refuse to buy a bond, but who have laid by thousands of dollars earned in this country. While, formerly, such were quite generally excused by reason of their attachment to their homeland, it is time now that that ex cuse be brushed aside and the foreigners living and working in this country make a just return for the privileges that they have enjoyed since they came here.

FACTS AND FIGURES—THE PRICE OF LIBERTY

The writer of the editorial to which I have referred estimates that the raising of $5,000,000,000 would mean the giving of $250 by each family in this country. While I would not be willing to say that every family could lay by $5 a week to make up this amount in a year, I am sure that there are thousands of families among our miners who are able to make this contribution toward the cause.

Wages have never been so high as at present. Indeed, a mine foreman cannot interest the miner whom he wants to hire, unless he can show him a place where he can make $6 or $7 a day; and it is no sacrifice for such a one to put by $5 a week to assist in maintaining the liberties he enjoys.

In the present campaign for the Third Liberty Loan I believe that justice alone demands that every foreign-speaking man, regardless of his nationality, be expected to subscribe his share in the undertaking.

The argument that "this is a free country and every man can do as he pleases with his own," cannot apply when that freedom is at stake and looks to every loyal citizen for its support. This campaign should be general and all companies should coöperate. Every employee who subscribes to a bond should have a button and that button should be his passport or recommendation for employment wherever he goes among the mines. Without it, his chances should be slim.

While I realize that many will shake their heads in disapproval of such action, it appeals to me as justifiable, under the conditions that bind all freedom-loving people together by a common yoke. We should all pull together and work for the success of what will insure to us a free country to live in. THOMAS HOGARTH.

Heilwood, Penn.

Coal Production and Booze

Letter No. 9—Whether coal miners are more addicted to the use of strong drink than workmen employed in other industries is uncertain. That many of them have inherited a great thirst for drink from which it is almost impossible for them to break away cannot be denied. The charge, coming from many quarters, that coal miners are indulging in strong drink to the extent that they neglect their work and the production of coal is thereby shortened seems to be true.

When miners go on a strike over what may prove to be a trivial disagreement with the management, the production of coal is naturally cut off for a time. In that case, however, there would appear to be a shadow of an excuse, justifying their act in closing down the mine. But, for miners to stay out of the mine for no other purpose than to satisfy their thirst for drink, at a time when the nation needs every ton of coal it can get for the successful prosecution of the war, there is no justification. Such an act on the part of any miner can only be regarded as next to treason to his country.

I was forcibly struck with the statement of John Buggy, in his letter, *Coal Age*, Feb. 9, p. 300, that in his town of 375 persons there is consumed 200 gal. of intoxicating drink a week. This would average more than two gallons a month for every man, woman and child in the town, and, yet, Mr. Buggy adds, "all the men in the place are not confirmed drinkers." It is certain, then, that those who do indulge are heavy drinkers. If the cost of liquor is as high in that town as it is here ($6 to $10 per qt.) the habit must cost the drinker a large amount.

WHERE THE SALOON IS EXCLUDED

The town in which I am living has a population of about 2000, and I feel safe in saying that 200 gal. of intoxicating drink is not brought into the place in a year. A few years ago the saloons were voted out of town. Previous to that time, I have known miners to draw over a hundred dollars on payday and blow it all in at the saloons in two or three days.

The exit of the saloon, however, has brought a great change and taken the boozers to other places. You never see a miner here under the influence of drink and

one seldom hears it mentioned. Since the saloons disappeared, the town has had better schools, better streets and better people.

The suggestion that the Government limit the amount of liquor a miner should drink in a given time does not appeal to me as a means of curtailing the drink habit among miners. Allowing that coal production is as great a factor in winning the war as claimed, it would seem that if the supply of coal is being curtailed through the drink habit of miners, *the Government would be amply justified in taking the liquor question in hand and settling it for all time, by prohibiting the manufacture and sale of intoxicating drink throughout the length and breadth of the land.* To my mind, that would be the surest way of dealing with the matter.

Government regulation has been exercised in respect to other industries where such action was necessary to avoid interference with the prosecution of the war. Why, then, should not the manufacture of intoxicating liquor be dealt with in the same emphatic manner.

It is said that the Government must rely upon its army of miners as certainly as upon its army of soldiers, the one fighting at home and the other fighting at the front. But, drunken soldiers are worthless, and a drinking miner cannot perform his part in the great struggle. There is every reason, therefore, for the Government to take a hand and eliminate this greatest evil of the times.

In another letter, Feb. 2, p. 259, under the caption "Miners and the War," a miner has drawn a picture of schools in the heart of the anthracite coal field being closed down to save fuel, depriving the children of needed education, while their fathers are grouped around a hot stove in a bar-room, unfitting themselves for the work of producing coal.

Let the Government Answer

The question comes home to us, *Why does our Government permit the heating of saloons when the schools are closed to save fuel? Why are the people rationed on bread when bushels of grain are being converted into liquor in the breweries?* These questions cannot be answered without revealing facts that are a burning shame to any honest government.

The statement made in the same letter that "the saloon is the last thing the miner sees in the morning when going to work and the first thing he strikes on his return from the mine" reveals a deplorable state of affairs in the mining town or camp to which it refers. But, miners who are true and loyal to their country's interest will not spend their time and money in the saloons when their services are needed in the mines; and the men referred to by this writer are surely not American miners.

In conclusion, let me say that it is encouraging to note the rapid growth of sentiment for national prohibition, among the better element of miners of all nationalities. The patriotic and sober miner is disgusted with his fellow worker who indulges in strong drink and absents himself from the mine where he is needed. Miners are making good money and the opportunity is afforded them by the Government to invest it at a good rate of interest where it will be safely kept against the time of need.

It is always a sad sight to see an old miner, who has passed his sixtieth year, and whose head is gray and form bent under the burden of his years, still digging coal as the only means of obtaining a living. In his younger days he has made good money and regrets now that he did not lay it aside for the future, instead of spending it in a way that did him more harm than good. Let every young miner, today, take this to heart and resolve that such will not be his condition later in life.

John Rose.

Dayton, Tenn.

Storage-Battery Locomotives

Letter No. 2—I was interested in reading the letter of "Engineer," *Coal Age*, Mar. 16, p. 513, in which he alludes to the great advance the storage-battery locomotive has made since it was first introduced in mining a few years ago. The following items may be of interest in this connection:

There are, today, several types of storage-battery mine locomotives in use. I believe I have the honor of being one of the first to adopt this type of locomotive for use in the mines, in this particular field, having employed them during the past four years.

The first locomotive of this kind introduced into our mine was a 5½-ton machine equipped with 48 lead-battery cells. This locomotive was used for one year in the work of gathering coal from rooms and delivering it to the tipple, with an average length of haul of 3500 ft. In some places there was a 3 per cent. grade against the load. The locomotive hauled 125 cars, in a 9-hour shift. The loaded cars weighed 4 tons, gross, apiece and were equipped with roller bearings.

After working this machine one year on the long haul mentioned, it was used six months longer for gathering cars from the rooms and placing them on the main line switch, and the life of the battery then expired. During this period of 18 months, this locomotive had taken the place of four mules and three drivers and had operated continuously with a total cost for repairs of $86.45 exclusive of replacing exhausted cells by new ones.

Advantage of Improved Types

Storage-battery locomotives are very simple to operate, and it is my opinion that the many late improvements in respect to durability and the recharging of the battery have earned for it a permanent place in the gathering of coal in mines. A battery is now being placed on the market having a 10-year guarantee. This battery can be fully recharged in 3½ hour, for an 8-hour shift, which overcomes the necessity of operating the power plant and employing a man to watch the locomotive at night. The arrangement is such that the battery is automatically cut out as soon as it is fully charged and retains its full capacity of power.

Storage-battery locomotives possess many advantages over the trolley-and-reel locomotives. The necessity of installing a trolley wire and bonding the track is eliminated. One advantage worthy of consideration is that the motorman, not having to divide his attention between the trolley pole and the reel is in a position to watch his helper more closely, whereby many accidents are avoided.

Another consideration is the fact that where mines are supplied with power from a central station, it fre-

quently happens that the power is cut off at intervals, which renders the trolley locomotive helpless on the main road. When this happens it is possible to run the storage-battery locomotive out on the main line and thus keep the coal running to the bottom of the shaft.

Sovereign, W. Va. SUPERINTENDENT.

Mine Cars

Letter No. 7—As may appear from a previous letter of mine published in *Coal Age*, Mar. 9, p. 468, asking for accurate information on mining equipment of different kinds, I have been deeply interested in the letters relating to this subject.

My attention has been particularly drawn to a letter signed "Experience," Mar. 16, p. 514, in which the writer attempted to give the comparative costs of lubricating plain- and flexible-bearing mine cars. His estimate of $16.64 per car as the total yearly cost for oiling plain-bearing cars leads me to think that he has not based his calculations on actual facts; but has, like the small boy, "thunk them all out of his own head."

Kindly permit me, then, to present a few actual figures based on carefully kept cost-records of the past year. The prices of oil and grease quoted are the war-time prices in this district, and the labor is according to the latest wage scale. While very few mines run 300 days in the year, I will use that figure for the sake of convenience.

Estimated Cost Based on Practice

In our mine we have 420 cars in use and permit none of them to remain idle except when laid up for repairs in the shop. Our cars average a run of 12 miles per car, per day. The records show that we use an average of 2 bbl. of oil in three days when the mine is running. Estimating on operating 300 days in the year, this would mean two hundred 50-gal. barrels of oil, costing, at 12c. per gal., $1200 a year; or $1200 \div 420 = \$2.86$ per car, per year.

We pay our oiler $4.36 per day, which would amount to $1308 a year of 300 working days. This would show a labor cost for oiling, $1308 \div 420 = \$3.11$ per car, per year. The total cost for oil and labor would, therefore, be $\$2.86 + \$3.11 = \$5.97$ per car, per year.

Now, by way of comparison, it will be observed that "Experience" gives the total cost of oiling roller-bearing cars, per year, as $1.60 per car; and deducting the 40c. given as the cost of labor leaves $1.20 as the price of the grease used per car, per year, which he quotes at 10c. per lb. From this, I assume that he estimates 12 lb. of grease per car, per year. But, at the present price of 16c. per lb., this would make an expenditure of $12 \times 16 = \$1.92$ per car, per year, for grease.

From information at hand, I estimate the labor of greasing would be 35c. per car, per year, which would make the total cost of greasing, including labor, $\$1.92 + \$0.35 = \$2.27$ per car, per year. This shows a difference in favor of flexible roller-bearings of $\$5.97 - \$2.27 = \$3.70$ per car, per year.

However, inquiry shows that it will cost about $50 per car to make the change from plain to flexible roller-bearings. That being the case, the advisability of making such a change will depend on what other savings can be realized by the use of roller bearings.

The user of mine equipment of any description must always be on his guard against misleading statements, and claims made by manufacturers of different types of the same kind of equipment. As in the case to which I have referred, the statistics given are frequently based on inaccurate information. Actual working conditions soon prove the fallacy of accepting these claims and statements as gospel truths. To illustrate this point, allow me to cite a single instance, which I believe most mining men will agree was a greatly exaggerated statement on the part of the manufacturer.

In a display advertisement of a leading firm, exploiting a new device for the handling of cars on the shaft bottom, the statement was made that after said device had been adapted to the style of mine cars in use, one of the items saved would be a 50-per cent. reduction in the labor required at the bottom of the shaft. It is difficult to understand how from 700 to 1200 cars a day can be hoisted in a single shaft and avoid the employment of from five to seven men.

Statistics of Actual Performance Wanted

It might be assumed that I am not supporting the use of up-to-date mining equipment. But on the contrary, I am a firm believer that both the flexible roller bearing for mine cars and the storage battery motor for gathering coal at the face, as well as many other types of improved mine equipment, have come to stay. The point I wish to emphasize, however, is that what the operator needs and must have, before installing new equipment, is reliable information giving actual statistics in respect to the durability and upkeep.

Some operations may be nearing completion and will not warrant replacing the old equipment with improved types. At the same time, the operators may have future plans in view, and it behooves all mining men to keep posted on the latest mining methods and equipment. This is all the more important, because in a few years competition will be close and costs will be the main topic among operators.

Allow me to say, in closing, that our cars are kept well oiled and dry wheels are practically unknown in our mines. I believe that the time to oil an old-fashioned wheel is every time you look at it. In our mines, this work is not left to half-grown boys, but is in charge of a responsible man, who has other duties to perform, such as coupling cars and assisting in the general work on the shaft bottom. J. S. GELSTON.

Nobleston, Penn.

Removing Worn Locomotive Tires

Letter No. 1—In looking over a recent number of *Coal Age*, my eye rested on an article entitled "Retiring Mine Locomotive Trucks," by J. L. Ball, in the issue, Mar. 23, p. 530.

In that article, Mr. Ball describes his method of removing wornout tires from locomotive trucks, by boring a ¾-in. hole entirely through the center of the tire to be removed, and then expanding the tire, so that it can be slipped off from the truck, by inserting a drift in the hole and driving it in with a sledge until the tire is loosened.

While this method described by Mr. Ball can be used to remove tires that are too badly worn for

further use, it is clear that it cannot be employed to remove tires that are to be turned down and used again. We all know the life of locomotive tires can be greatly extended by turning down worn tires; and it may be possible to do this, at times, without removing the tires from their trucks.

Where the arrangement in the shop is such that the tire must be removed from its truck before it can be turned down, the usual method to employ is to expand the tire by heat, until it is sufficiently loose to drop off when struck with a sledge.

In order to remove a tire by expanding it by heating, the truck is turned up on end and supported, in a vertical position, on bricks in a mound of earth so arranged that the entire center of the wheel is protected and the tire alone exposed to the heat of the fire, which is then built around it. Wet mud is filled in between the spokes and above the center, so as to fully protect that portion of the wheel from the heat of the fire.

Care must be taken to apply a fairly moderate heat, distributed uniformly over the whole surface of the tire. As the iron warms, the tire expands and a few blows from a sledge will soon cause it to drop from the truck, which must be at once removed from the fire. The success of the operation depends largely on building a quick wood fire, by which the heat will be applied more uniformly to the tire without reaching the wheel.

It sometimes happens that after turning down the tires, the locomotive sits too low on the track. To overcome that difficulty, it is necessary to block up the body of the machine under the springs. In heating new tires that are to be shrunk on the wheel, do not place two tires together, but separate them by putting bricks between, which will enable the heat to be applied more uniformly and give better results.

B. SHELL, Vice-Pres. and Sec'y,
Logan, W Va. Guyan Machine Shop.

Safety in Shotfiring in Mines

Letter No. 3.—In the Foreword of *Coal Age*, Feb. 23, there appears this statement, "Recently sticks of dynamite have been found mixed with coal in several coal cars. Investigation has shown that the explosives were placed in the cars at the mines." Permit me to express the opinion that most of this is due to carelessness on the part of some miners, rather than any intent of alien miners to destroy life or property.

There are employed in the mines at this time many careless and inexperienced men who are handling explosives, and it should not be thought strange if occasionally one or more sticks of dynamite are found mixed with the coal. I have seen as much as a whole stick of a poor grade of dynamite that had failed to explode, mixed with the coal at the face, and I have heard other miners say that they have seen the same thing, but in loading the coal into the cars most generally but not always the miner sees them and throws them out.

In this time of war, we are all on the lookout for the enemy everywhere, and the finding of an unexploded stick of a poor grade of permissible explosive in a car of coal receives more attention now than in a time of peace. I have known, personally, more than one instance where miners have failed to take a keg of powder out of the car, before loading the car at the face, and the powder was hauled out of the mine and dumped into the chute.

One instance occurred where the coal was loaded into a car on top of dynamite and the whole was tipped into the chute. On another occasion the coal was loaded into a car that was more than half-full of props and coal and props all went into the chute. I mention these instances to show to what an extent the carelessness of miners prevails in loading their cars.

At the present time, every safety measure possible should be adopted and strictly practiced in mining, in order to prevent alien enemies from getting explosives in their possession. I fully agree with the suggestion made in the Foreword to which I have referred that the appointment of shotfirers who merely ignite the shots loaded by miners, would not prevent alien enemies from getting hold of explosives.

PRESENT CUSTOM AN UNSAFE PRACTICE

As long as the present custom of permitting all miners to handle explosives continues, there will always be many opportunities for aliens to get possession of the dangerous stuff. As a protection to life and property, and a safe guard against the placing of explosives in coal cars and other places for destructive purposes, as suggested in the Foreword, all shots in all mines should be fired by shotfirers, who must be competent, careful, honest, sober and practical miners and have in their charge all explosives.

The miners should be required to bore their holes, prepare the tamping material and have it at the place; but the shotfirers must place the charge, tamp and light the shots. Under such a system, no doubt many badly located holes would be left uncharged and unfired, but in the end this would have a good effect, as it would tend to make the miner use the pick more, and be more careful in arranging his shots.

SHOTFIRERS SHOULD BE EMPLOYED IN ALL MINES

At first, the employment of shotfirers may appear to be unnecessary and expensive in the opinion of many operators; but, after a little careful figuring it will be found less expensive in the end, than for miners to prepare and fire their own shots. As suggested in the Foreword, there would be a reduction in the number of accidents caused by the careless use of explosives by inexperienced miners, and there would be fewer damage suits to be settled in the courts.

With practical shotfirers the number of shots to be fired would be reduced, and the amount of coal broken down increased. The amount of explosives used would thus be materially lessened and there would be fewer overcharged shots. There is no question but what many miners to-day are not using the pick sufficiently and giving their shots enough clearance, but are depending upon excessive charges of exposives.

I think the mining departments of the several states should take this matter in hand and enforce such regulations as will be effective in preventing alien-enemy miners from handling explosives in and about coal mines. There seems to be a strong tendency on the part of some inspectors to have all mines put on shotfirers. Where the authority is not already given

by law to do this, the inspector himself should require that it be done.

The district and assistant mine inspectors of the states are more interested in the safety of miners in their territories than any one else; and the question of the employment of shotfirers, as a means of safety to miners and to prevent alien-enemy miners from handling explosives in and about mines, should be turned over to the mining departments. As suggested, "This is not a time for halfway measures."

Dayton, Tenn. SAFETY FIRST.

Straightening Brittle Mine Rails

Letter No. 1—When reading a back number of *Coal Age*, a short time since, I came across an inquiry asking for the best method to be used in straightening brittle rails in mines [Vol. 10, p. 613]. It was explained that the rails had become crystallized, and were so brittle that when an attempt was made to straighten them the iron would break.

In the reply given to this inquiry, the crystallization was attributed to the pounding and vibration to which the rails are subjected in motor haulage. It was recommended that such rails should be annealed, for which purpose they would have to be heated and that required taking them out of the mine.

I want to suggest that such a proceeding is not necessary, as the rails can be straightened without heat and without being broken. The process is a very simple one, the only cost of the operation being the wages of the man doing the work.

The scheme is, I believe, quite well known to the majority of miners and it will hardly be necessary to more than refer to it, by way of drawing attention to the lack of necessity for taking the rails out of the mine. If desired, however, I can describe the method, or someone else can do so if they choose.

——, Penn. MECHANIC.

[*Coal Age* and its readers will be glad to have this correspondent describe the method of straightening brittle rails, in mines, without breaking them and without resorting to the usual process of annealing the iron to make it more pliable.—Editor.]

Working 10-Ft. Inclined Seam

Letter No. 2—I was interested in the inquiry of "Superintendent," *Coal Age*, Mar. 23, p. 561. In answer to his request for suggestions as to the best method of working a 10-ft. inclined seam under a weak roof, kindly permit me to submit the following:

This seam, outcropping on the surface, should be opened by two separate slopes driven on the floor of the seam 100 ft. apart. These slopes should be 9 ft. wide. Owing to the height of this seam and the weak roof overlying it, at least 3 ft. of the coal should be left up, which will make a fairly good roof.

Steel timbers should be used at the opening, and, if necessary, steel crossbars should be used on the main haulage road. Owing to the short period of time the cross-entries will be kept open, wooden crossbars can be employed, and these should be hitched at least 9 in. into the coal on each rib. Under the conditions named, it is important to protect all entries by leaving ample pillars; and I would suggest the use of 60-ft. center pillars and 100-ft. barrier pillars on all entries. Owing to the great thickness of entry pillars, it may be possible to drive the crosscuts 100 ft. apart.

The cross-entries should be driven on the strike of the seam, in pairs, 400 ft. apart. Rooms should be turned on 40-ft. centers to the rise of each pair of cross-entries. The room necks should be driven 9 ft. wide for a distance of 20 yd., where the room is widened to 15 ft., leaving pillars 25 ft. wide between adjoining rooms. The rooms are driven up a length of 100 yd., which will leave a barrier pillar 100 ft. wide between the face of the rooms and the pair of cross-entries above them.

Owing to the softness of the sandy shale forming the floor of the seam, a systematic method of timbering should be adopted. Props should be set not over 4 ft. apart and crossbars used over the roads in each room. Other props should have a broad cap piece and foot board, which will afford a better support for the roof coal. Pillars should be drawn back to within 60 ft. of the entry and the entry pillars and stumps withdrawn when the rooms are finished. A large percentage of the roof coal can be recovered when drawing back the pillars.

IMPORTANT PRACTICAL CONSIDERATIONS

It is very important that this mine be kept well drained. All rooms and entries should be driven on sights established by competent engineers. An accurate map of the mine should be made and kept up to date by frequent surveys. Besides the entries and rooms that form the mine workings, the map should show all surface features such as streams, rivers and other bodies of water, besides all buildings and other improvements. A map of this kind will give the mine foreman valuable information when robbing the pillars.

It is my opinion that punching machines will be found best adapted to the mining of this coal. These machines provide a good undercut from 12 to 16 in. in height at the face of the coal, which will be found a great advantage when the coal is blasted, as it will assist in keeping the roof strong. I would suggest taking out this coal in two benches, each 3½ ft. thick, making a total height of 7 ft. to be extracted in the first working.

Motor haulage could be used to good advantage in this mine. The trolley wire can be carried on one side of the entry, which is high enough to insure safety from the accidental contact of men and animals with the wire. There should be maintained a clearance of 2½ ft. on one side of the road, with shelter holes every 45 ft. on the same continuous side of the entry. This will provide ample safety for persons traveling the haulage roads when the motor is in operation.

The mine should be ventilated by a fan, and the air current directed to the face of the workings, by building good concrete, brick or tile stoppings in the breakthroughs, and using brattice cloth in the rooms when this is necessary to cause the air to sweep the face of the coal. The split system of ventilation should be employed, which will give each district its own supply of fresh air and provide the greatest safety.

Dubois, Penn. ROBERT WILLIAMS.

INQUIRIES OF GENERAL INTEREST

Measuring Air Velocity in Mines

Kindly permit me to ask, What is considered the most accurate method of measuring the velocity of air currents in mine airways? Is the velocity at the center of the airway generally accepted in practice, or is an average velocity obtained by taking readings at different points in the cross-section of the airway, such as at the sides, roof, bottom and center; and would this average more correctly represent flow of air for the entire sectional area of the airway? Also, kindly state what make of anemometer is the most reliable for taking velocity readings varying from 50 to 5000 ft. per minute.

Coral, Penn. INQUIRER.

The measurement of the quantity of air passing in a mine airway, by taking velocity readings at a given point in the airway is attended with numerous difficulties that render the results obtained more or less approximate. There are many conditions that make it practically impossible to determine accurately what is the average velocity of the air current in a mine airway.

As is well known, a straight airway that is unobstructed, permitting a uniform flow of air through it, will not give the same velocity readings in close proximity to the sides, top and bottom of the airway as at the center. The friction between the passing air and the rubbing surface of the airway acts to retard the flow of the air in contact with that surface.

Again, where bends occur much of the air is deflected from its course in the airway, and crowds the outer curve of the bend where the velocity will be the greatest. Owing to the same cause, the velocity at the inner curve of the bend will be less than at any other point of the airway.

Again, because of a difference in temperature or gaseous condition of the air passing into the mine and that filling the workings and many void and abandoned places, the warmer or lighter air will crowd the roof of the airway, while the cooler or heavier air travels along the floor. This may give a different velocity of the air current at the roof and the floor. The same effect is observed in dips and rises in the airway, where the bulk of the air may crowd the roof or the floor of the passage as the case may be.

An important factor to be considered, in taking measurements of the velocity of air in an airway, is the obstruction that the observer's body presents to the even flow of the air. It is impossible to make any accurate allowance for this obstruction, which always acts to increase the reading of velocity, but not in proportion to the decrease in sectional area by reason of the observer's body.

Not infrequently has it happened that a crafty mine foreman, knowing that his mine was short of air, would affect to be much interested in the readings taken by the mine inspector, hoping that the inspector would not realize that his presence in the airway would give a higher reading, which was his real intent and purpose.

Notwithstanding these practical conditions that affect the accuracy of velocity readings in airways, the prevailing practice is to measure the volume of air passing by taking anemometer readings at a selected point in the airway, where the sectional area has been carefully measured, using for that purpose the Biram anemometer shown in the accompanying figure. In my opinion, the chief point to be considered is that these readings should always be taken at the same point in the airway and under similar conditions, so that the comparison of the readings taken from time to time will be of greater value than if these readings had been taken at different points and under varying conditions.

THE BIRAM ANEMOMETER

When taking the velocity readings the observer should stand facing a rib of the airway, with his back against or near the opposite rib. He should hold the anemometer at arm's length, say a foot or so beyond the center of the airway. It is well to take a one-minute reading, say 2 ft. above the bottom and another like reading 2 or 3 ft. below the roof. We would suggest that an attempt to obtain an average reading by moving the anemometer about in the airway, except under particularly favorable conditions, is not generally satisfactory.

In closing, *Coal Age* would recommend, in general mining practice, the use of a reliable Biram anemometer such as shown in the figure to which we have already referred. An instrument of this kind is manufactured by the Davis Instrument Mfg. Co., Baltimore, Md. The 5-in. Biram anemometer is made to register a velocity up to 10,000 ft. per min. In this connection, we would refer to a description of this instrument and its use that appeared in *Coal Age*, Vol. 4, p. 655.

While the readings of the anemometer, taken with proper care, are generally accepted in the measurement of air volumes, in common mining practice, when greater accuracy is required engineers employ a Pitot tube, which is an instrument designed to measure the velocity of air in a conduit, as determined by the pressure head producing such velocity. This instrument is not adapted to general use in mines, however, and requires more skill than average mining men possess.

EXAMINATION QUESTIONS

Miscellaneous Questions

(Answered by Request)

Ques.—An airway is 4 x 4 ft. in section and passes 9000 cu.ft. of air per min.; what would an airway 9 x 9 ft. in section pass, if the length and pressure are the same in each of these airways?

Ans.—For the same length and pressure, the quantity of air passing in an airway is directly proportional to the square root of the cube of the area and inversely proportional to the square root of the perimeter of the airway. In other words, the quantity of air passing is proportional to the potential factor $a\sqrt{\frac{a}{o}}$, in which a equals the sectional area and o equals the perimeter of the airway. Finding the value of this potential factor for each of the airways given, we have as follows:

First airway,

$$a = 4 \times 4 = 16\ sq.ft.;\ o = 4 \times 4 = 16\ ft.$$

Second airway,

$$a = 9 \times 9 = 81\ sq.ft.;\ o = 4 \times 9 = 36\ ft.$$

The value of the potential of each of these airways is then,

First airway,

$$a\sqrt{\frac{a}{o}} = 16\sqrt{\frac{16}{16}} = 16$$

Second airway,

$$a\sqrt{\frac{a}{o}} = 81\sqrt{\frac{81}{36}} = 81 \times \frac{9}{6} = 121.5$$

Therefore, letting x denote the required quantity of air circulating in the second airway, under the same pressure that passes 9000 cu.ft. in the first airway, and making the quantity ratio equal to the potential ratio, we have

$$\frac{x}{9000} = \frac{121.5}{16};\ \text{and}\ x = \frac{9000 \times 121.5}{16} = 68{,}343+\ ft.\ per\ min.$$

Ques.—Four airways, A, B, C and D have the following respective lengths: A = 200 yd.; B = 400 yd.; C = 600 yd.; D = 800 yd. Taking the sectional area of A as 50 sq.ft., find the respective areas of the other three airways such that each of the four airways will pass 50,000 cu.ft. of air per min., under the same unit pressure.

Ans.—Assuming a square cross-section for each of the four airways A, B, C and D, for the same pressure and quantity of air passing, the sectional area in each airway will vary as the fifth root of the square of its length. In other words, the ratio of the sectional area of each of the airways B, C and D to that of the first airway A, will be equal to the fifth root of the square of the ratio of the length of said airway to that of the first airway.

In the use of ratios, the solution is much shortened by taking the relative lengths of these airways as 1, 2, 3 and 4, instead of their actual lengths. Doing this, the respective areas of the airways B, C and D are found as follows:

B, $\frac{x}{50} = \sqrt[5]{\left(\frac{2}{1}\right)^2}$; and $x = 50\sqrt[5]{2^2} = 66\ sq.ft.$

C, $x = 50\sqrt[5]{3^2} = 77.6\ sq.ft.$

D, $x = 50\sqrt[5]{4^2} = 87\ sq.ft.$

Ques.—A direct-current motor takes 40 amp. at 500 volts pressure for 100 hours; what horsepower does it consume?

Ans.—The horsepower that will produce a current of 40 amp. under a pressure of 500 volts is

$$H = \frac{EC}{746} = \frac{500 \times 40}{746} = 26.8\ hp.$$

Ques.—Assuming an air shaft 5 x 5 ft. in section and 200 ft. deep, passing 20,000 cu.ft. of air per min. under a 2-in. water gage, how much would this shaft have to be enlarged to reduce the power one-half?

Ans.—In answering this question, what applies to the enlargement of the shaft will apply to a similar enlargement of the airways; and neither the depth of the shaft nor length of the airways enter the solution. For a square cross-section and a constant length of air passage and quantity of air in circulation, the sectional area of the passage will vary inversely as the fifth root of the square of the power on the air. In other words, under the conditions named, the area ratio is equal to the fifth root of the square of the inverse power ratio. Thus, the original sectional area being 5 × 5 = 25 sq.ft., and calling the required sectional area x,

$$\frac{x}{25} = \sqrt[5]{\left(\frac{1}{0.5}\right)^2} = \sqrt[5]{2^2} = \sqrt[5]{4}$$

$$x = 25\sqrt[5]{4} = 25 \times 1.32 = 33\ sq.ft.$$

Since $\sqrt[5]{33} = 5.74$, or say 5 ft. 9 in., this shaft would have to be enlarged 9 in. on each side, in order to pass the same quantity of air under one-half the power.

Ques.—When, if necessary, is it advisable to change from animal to a mechanical system of haulage?

Ans.—Animal haulage should be replaced by a suitable system of mechanical haulage as early as the development of the mine will permit. The distance of haul from the inside parting to the shaft bottom should be at least 400 or 500 yd., and the daily output sufficient to keep the system running.

NOTE—In the fifth question, on page 806 of the last issue of *Coal Age*, the weight of the T iron should be 25 lb., instead of 35 lb. per yd.; and the cost, in the answer, should be estimated on "gross tons" (2240 lb.), instead of short tons (2000 lb.); thus, 800 × 25 ÷ 2240 = 3.928 gross tons, making the cost 8.928 × 50 = $446.40.

In the sixth question, the velocity being given as "450 ft. per minute and a half," the quantity of air passing should be estimated, in the answer as $\frac{3}{4}$ (450 × 72.3) = 21,690 cu.ft. per minute.

COAL AND COKE NEWS

Harrisburg, Penn.

Shipments of anthracite to 19 states are now barred by order of the Federal Fuel Administration, according to a statement put out on Apr. 26 by the anthracite operators' committee, with headquarters in Philadelphia. These states are forbidden to draw on the anthracite supplies to protect the supply of the Middle Atlantic and New England States, which particularly require and are the greatest normal users of anthracite. Continuing, the statement says: "The states to which no anthracite may now be shipped either directly or indirectly are Alabama, Arkansas, California, Colorado, Florida, Georgia, Idaho, Kentucky, Louisiana, Montana, Mississippi, North Carolina, Oklahoma, Oregon, South Carolina, Tennessee, Texas, Washington and Wyoming."

Two hundred and fifty coal operators have formed the Central Pennsylvania Bituminous Producers' Association, J. P. Cameron, district fuel representative, announced on Apr. 26. The organization will keep the members informed on matters of importance in the coal industry, and an executive secretary will have offices in Altoona. Harry Boulton, Clearfield, was elected president, and John Lloyd, Jr., Altoona, vice president and secretary-treasurer, T. H. Watkins, New York, chairman of the executive committee, will conduct all negotiations between the Government and the association.

The cause of the discontent among the miners of District No. 2, central Pennsylvania, is a shortage of cars. There are approximately 40,000 members of the miners' organization and about 30,000 nonunion members in the district. In many of the mines, it is said, the men are given only seven or eight hours' work a week because there are no cars in which to load the coal. If it were possible for the men to be assured of five or even four days' work weekly, there would have been no demand at the Dubois convention last month for an increase in the price paid per ton for mining and the day wage scale. There seems to be an actual inability on the part of the railroads to handle the traffic, although there are plenty of miners who openly accuse the railroads of deliberately tieing things up in order to convince the public that the Government is not capable of conducting the railroad business of the country. No matter how that may be, one thing is certain. The mining question would be solved in central Pennsylvania if there were plenty of cars for all mines.

Among the operators there is a great deal of dissatisfaction over the placing of box-cars at mines where they must be loaded by hand. The added labor cost per ton is extremely heavy, and the Fuel Administration has declined point blank to make any allowance for the extra expense of loading. Besides, in the central Pennsylvania district these box cars, when loaded, can be shipped only in a westerly direction and cannot go beyond the limits of the zone. In other words, that coal must be sold in a field, like Pittsburgh and eastern Ohio, where there is plenty of native coal.

Scarcity of mining timber is a serious problem that confronts the anthracite industry. Intensive methods are being used to husband every foot of wood, for practically all the mountains in the anthracite region have been stripped of their young growth and cut to meet the demand. The cost of mine timber has steadily advanced, and the coal companies are ready to pay any reasonable market price for the needed timbers.

Shipments of heavy gangway, slope and shaft timber for general uses from the South have been largely cut off by the huge Government demands for lumber, and, in many instances, timber shipped from Georgia consigned to the mines has been commandeered by the Government, which is also taking lumber from retail yards. Throughout central Pennsylvania contractors are cutting every available stick of timber, and fabulous sums are asked for what useful tracts remain. These are generally held by estates.

Despite the report of the United States Forest Service that forty billion feet of lumber, enough to build 2,000,000 bungalows, was produced in this country during 1917, lumber is scarce. This preliminary estimate is based on the reports of 17,000 mills to the Government. It is significant to note that the reports of 700 mills—whose production is almost equal to the aggregate production of the remaining 49,000 other mills—show that the total of lumber cut by these mills in 1917 was 600,000,000 ft. less than the total shipped. High labor costs and transportation congestion have been chief factors in curtailing production of lumber, plus the prices fixed by the Government for its supply.

Birmingham, Ala.

As a result of the readjustment of wages announced for May 15, conditions in the mining districts of Alabama today present a most serene appearance. Under the new arrangement day labor at the mines will receive better pay, and as a result of the marked spirit of contentment that has settled upon this section a maximum production of coal at all mines is expected.

The Alabama coal mines are doing their share toward a material increase in production urged upon the mining centers of the country, according to figures compiled by the United States Geological Survey. These figures for the second week in April, just made public, show that the increase of bituminous mines in this country was 1,630,000 net tons, or more than 17 per cent. over the production of the previous week. The total production for the week ending Apr. 13 was 10,947,000, as compared with 9,317,000 for the previous week.

Coke production is also being maintained along most encouraging lines. Coke ovens at Jasper, in Walker County, and at Trussville will soon be operating under capacity restriction, but little of this added production is expected to reach the open market as the demand already passes the probable output. More than 1000 tons of coke could be handled were its manufacture possible, and until more ovens are in operation there is little possibility of much overflow into the open market.

As is the case in the pig-iron market, the limit in coke making has been reached in Alabama. This is the spur that is speeding up construction of the 154 byproduct coke ovens of the Tennessee Coal, Iron and Railroad Co. at Fairfield, and has led to the prediction that developments along the same lines will be announced by two and probably three other companies within the next 15 days.

Alabama added another coal company to its list of industries during the week, the newcomer being the Donaldson-Stobert Coal Co. capitalized at $25,000, and which filed its papers of incorporation in the Probate Office recently. The company is now developing coal lands in the vicinity of Henry-Ellen and Leeds, in the northeastern section of Jefferson County. A large mine will be producing coal in that vicinity within the next few months, the company announces. J. M. Donaldson is president of the new company, Thomas Berry, vice president, and Tom Stobert, secretary-treasurer. The company will maintain its general offices at Henry-Ellen.

Fairmont, W. Va.

It was feared for a few days that the railroads had determined to show up the coal operators in the Fairmont district by putting a bigger car supply in the region than it was possible to load, labor having been depleted by the poor car supply of recent months. On Monday and Tuesday of last week the cars furnished tested the capacity of the mines, but the plentiful car supply was shortlived. On Wednesday it fell down, and on Thursday there was a still greater scarcity of cars, the week finishing with only two really big days.

The car supply in the Pocahontas field has been greater than could be loaded since Apr. 1, and that condition is assigned to the labor shortage as well as to an epidemic of measles and grip. These were the only districts in the state that had more cars some days last week than could be loaded.

The Fairmont district has waged a bitter war for cars through the Central West Virginia Coal Operators' Association, and it was embarrassing when the empties began to come to the region in greater numbers than it was possible to load under existing circumstances.

A condition exists in Bluefield, W. Va., which is probably without duplication in the country. Bluefield, a city of 20,000, is located at the very mouth of the most important coal producing region in the country in war times, and yet there is a scarcity of coal imminent through a peculiar combination of circumstances.

A ruling of the Fuel Administration provides that in case of necessity the County Fuel Administration may divert cars "consigned to any point within the state." This does not solve the problem at Bluefield, however, for the coal produced in the Pocahontas field is consigned altogether to points outside of the state, Bluefield being in one corner of the commonwealth and having more direct relations with Virginia than with West Virginia, in which it is situated.

The consequences have been that Bluefield has needed coal when demands for consumption greatly exceeded production, and F. J. Howe, the district representative of the Fuel Administration, has had instructions day after day to get every car possible to the Navy or to other points where the demand seemed to be most imperative. The local dealers, not being familiar with the manner in which fuel matters were being handled, appealed to the county coal committee, making the contention that Bluefield faced a coal famine.

J. Walter Barnes, federal fuel administrator, was appealed to and found that it required special effort on the part of dealers and domestic consumers, and coöperation with the district representative of the Fuel Administration, to supply the local needs. There had been one embargo lasting from Mar. 29 until Apr. 25, which was lifted on the very day that the federal fuel administrator arrived at Bluefield. This made it possible to secure coal if orders for it had been entered in advance.

It was emphasized that it was just as necessary for industrial and domestic consumers in Bluefield to buy coal early as those who were located at points distant from the coal fields, and that Bluefield consumers, like those elsewhere, could not be particular regarding the kind of coal they could obtain, but were to consider themselves lucky to be served at a time when smokeless coal was in great demand by the Government.

The new executive committee of the West Virginia Coal Association will meet at the Frederick Hotel on Saturday afternoon, June 1, in accordance with the decision reached at a mass meeting of coal operators of West Virginia held at Huntington Friday afternoon and night of last week. At this meeting it was also decided to perpetuate the state organization and name a new executive board, which is to consist of a member from every coal district, to be selected by the district association between now and June 1.

C. H. Jenkins, president of the Central West Virginia Coal Operators' Association, of the Fairmont district, vice president of the West Virginia Coal Association, presided at the meeting as Col. T. F. Houston, the president, could not attend. W. H. Cunningham, the present secretary of the organization, read the call determined upon at a meeting of the executive committee held Apr. 12 in New York. A committee on resolutions consisting of Quin Morton, of Charleston; A. Brooks Fleming, Jr., of Fairmont, and Capt. D. H. Barger, of Bluefield, condemned as untrue a statement given to the press by ex-Gov. W. A. MacCorkle, chairman of the Third Liberty Loan in West Virginia, in which the latter charged that the coal operators were "passive" regarding the loan.

A meeting earlier last week called for Washington, to consider a state organization as a part of the American Mining Congress, did not attract wide representation and it was decided there to postpone action until the Huntington mass meeting. The question of affiliating with the American Mining Congress did not come up here.

although the opinion prevailed that co-operation with that organization was likely to come about; but not in such a way that the same coöperation could not be given the National Coal Association, the splendid work of which was praised by nearly every speaker who has been in touch with its work.

Charleston, W. Va.

Little or no relief has been secured from the dearth of coal cars in this district as a result of the visit of local coal operators to Washington last week. John L. Dickinson and others held a conference with Director General McAdoo and other Government officials, but were unable to secure any promises of a definite nature. It was explained to them that lack of shipping facilities at Tidewater, where thousands of cars are tied up, and the tardiness of manufacturers despite high demurrage rates, in unloading cars on their sidings, was chiefly responsible for the car shortage in this and other regions.

Coal operators in the Kanawha district are in a quandary as to what other steps to take to improve the car situation. Cars are as scarce in this section this week as they were a week and a fortnight ago, causing a material curtailment of production, some of the mines, it being asserted, only being able to mine coal for two and a half days a week. Approximately 250 operations are affected by the car shortage, which has been averaging for the last few weeks only about 50 per cent. of the normal supply; and a large proportion of the cars received are for preferential shipments. Kanawha district operators contend that car supply conditions are worse than in any other section of the state at the present time.

The Supreme Court of the state has reversed the decision of the Logan Circuit Court which found for the defendant in the case of the Producers Coal Co. against the Mifflin Coal Mining Co. and has remanded the case, holding, among other things, that the general manager of a coal-mining corporation is a general agent and has implied authority to bind his principal by such contracts and modifications thereof as are reasonably necessary in conducting the business of mining and selling coal. The suit was for the breach of an alleged contract of sale to the Producers company of the output of the Mifflin company's mine for a year, beginning Apr. 1, and ending Apr. 1, 1917, the Mifflin company having as successor to the Mifflin Coal Co. taken over a four-year contract under which it was to pay 10 per cent. commission to the Producers company for selling the coal. The contract was changed as of Apr. 1, 1916, being signed by the general managers of the two companies, and under the terms of that contract the Mifflin company agreed to dispose of its output to the plaintiff at $1 per ton. Directors of the company contended that its general manager had no authority to enter into such a contract.

Holdings of the Consolidated Coal Co., in Harrison County, were increased last week when that company, for the sum of $259,249, paid in royalties, secured from the Monongahela River Railroad Co. 516 acres of coal lands on the waters of the West Fork. Title to the property was acquired under the terms of a lease by which the coal company paid royalties of 6c. a ton on 4,319,150 tons of coal mined.

Columbus, Ohio

A most important order emanating from Director General of Railroads McAdoo, has been received by Ohio coal carrying roads, which effectually puts a stop to the development of new mining concerns in all sections. The order, which was dated Mar. 2, was received by the T. & O. C. R. R. only recently, and no explanation was received why the order was delayed so long from the date of issue. The order which was signed by A. H. Smith, regional director, is as follows:

"Under existing conditions, it is felt that the expenditure of money and labor is inadvisable for the construction of branch lines for the opening of new coal mines, in view of the necessary unproductive work incident to such undertakings; unless there is some special reasons other than those generally applicable to such cases, in which event the matter should be submitted to this office, with full information, in order that proper investigation may be made to determine if the proposed development is in keeping with the general policy of the Director General."

This ruling comes as a complete surprise and disappointment to operating interests in Ohio, as it was believed that Federal officials were encouraging new operations, especially the opening of mines which would be capable of producing large tonnages. Many new operations in Ohio which were under way except where switches had not been constructed, are effectually stopped.

An important ruling has been received by Ohio coal operators from the Director General of Railroads relative to the payment for spurs and switches built to coal mines. Under the practice which has prevailed for some time, the operating interests were compelled to pay for the materials and work of construction of all spurs, and the property on the right-of-way of the railroad company reverted to the railroad. In other words, the railroads got the benefit of the construction, and if dismantled the value of the materials, including ties, rails, frogs and all other property. Under the recent ruling the railroad is compelled to construct and maintain the track as long as it uses the right-of-way of the railroad company and the operating interests construct and maintain the track when off the right-of-way.

H. S. McCauley has been appointed inspector for Southern Ohio, Pomeroy Bend and Mason County, W. Va., by W. D. McKinney, a representative of the Federal Fuel Administration in Ohio. Mr. McCauley was formerly in charge of the Ohio mine car and was actively engaged in putting out mine fires. He is a practical miner. His duties will be to inspect all coal produced from the mines in his territory in the interest of clean coal, which is being pushed by the Southern Ohio Coal Exchange.

Toronto, Canada

An important conference of coal operators, representatives of coal miners and railroads and government officials was held at Ottawa, Apr. 17 and 18. Sir George Foster, Canadian Minister of Trade and Commerce, presiding. Among those in attendance were Mr. Neale, representing the United States Fuel Administration; C. A. Magrath, Canadian Fuel Controller; W. H. Armstrong, director of Coal Mining Operations at Calgary; H. P. McCue, Assistant Fuel Controller for Canada at Pittsburgh; Hon. T. W. Crothers, Canadian Minister of Labor, and W. P. Hinton, representing the railroad companies.

The conference was private, but at its close Fuel Controller Magrath submitted a memorandum covering the chief developments. It contained the important statement that information had been furnished by the United States Fuel Controller to the effect that anthracite coal supplies to points in western Canada will be materially restricted, rendering it safe to predict that no American anthracite will be available for shipment to points west of Winnipeg. It is also proposed to restrict shipments of anthracite to Canadian lake ports during the early part of the present season, and the public must be given to understand distinctly that conservation of coal must be practiced to the utmost extent.

The memorandum further stated that Sir George Foster had been able to announce that the attitude of the United States Fuel Administration was that Canada would receive precisely the same treatment as the states of the Union. The Western states had been given to understand that they must use the softer coal of the West, and that the available anthracite would have to be conserved for the supply of the Eastern states and the provinces of Ontario and Quebec.

A memorandum from the Western mine operators stated their ability to increase the production of coal by 1,280,000 tons, and of lignite coal by 1,225,000 tons. These increases would represent the amount of coal that could have been mined during the time the mines were idle last year owing to strikes and want of railway transportation. The figures given would not hold good unless the same amount of labor was available as last year, and unless the railways were able to furnish the transportation required. The operators urged that dealers and the public take a large portion of their supply during the summer months, when the railroads are in a position to handle it.

A memorandum presented by the Nova Scotia operators stated that the production of the mines of that province had been estimated at 5,950,000 tons, but the production actually attained was 5,660,000 tons. They reported considerable improvement in transportation facilities and pointed out that scarcity of labor had been the main factor in the curtailment of output. The suggestion was made that the government should ask J. C. Walters, president of the Dominion Trades and Labor Council, to visit the mining centers and appeal to workmen for the greatest possible production. It is estimated that the output in 1918 will be 230,000 tons less than the production of 1917.

In outlining what could be expected of the transportation companies, W. P. Hinton stated that provided that the coal mines started shipping immediately and continued to ship uniformly until Sept. 30, the railways are prepared to haul to the different points from Winnipeg west 50 per cent. or more of the actual amount required. Under similar conditions, subject to ordinary circumstances, the railways will be prepared to handle the balance of the coal required after Oct. 1, and throughout the winter. He emphasized the necessity of a start being made at once and not at a later period in the summer.

PENNSYLVANIA

Anthracite

Nesquehoning—The town of Little Italy, near here, with 900 inhabitants, is being gradually moved to New Columbus, across the Nesquehoning Creek in Packer township. All the houses in the new town are occupied, and new buildings are going up right along. Little Italy is underlaid with coal, which will be mined by the Lehigh Coal and Navigation Co. as soon as the entire town has been moved to its new site.

Dickson City—The Delaware, Lackawanna & Western R. R., Coal Department, is contemplating the erection of a new breaker at the Storrs colliery. The breaker, it is said, will cost in the neighborhood of $250,000 and will be all concrete and steel construction.

Wilkes-Barre—At the spring meeting of the Carnegie hero fund held on Apr. 26, among those cited for heroism, were two coal miners, whose families have been awarded bronze medals and cash. David A. Cadwalder, deceased, bronze medal and $10 a month to the widow, with $5 a month additional for each of four children. Cadwalder, a laborer, died attempting to save Leroy D. Winters from suffocation at the Wilkes-Barre Colliery Co. mine, Oct. 17, 1917. An explosion of firedamp occurred, and the two men and others hurried from the face of the tunnel to seek safety. John Harry, the other miner, was awarded a bronze medal for attempting to save Winters from suffocation, but was overcome with gas and was forced by other rescuers to go to the surface.

Bituminous

Uniontown—Morgantown interests have bought the mine and plant of the Johnson Fuel Co., at Percy, for $100,000. The tract consists of 324 acres of coal land in the Sewickley seam. J. L. Hatfield and R. L. Morris are among those interested in the new company.

Connellsville—An item appearing under this head, in the April 13 issue relative to the 15 per cent. increase granted by the H. C. Frick Coke Co. to its employees, did not apply to this company, as erroneously stated, but only to the United States Steel Corporation.

WEST VIRGINIA

Clarksburg—Abandoning the use of compressed air, the J. W. McDonald Coal Co. is having all its mines in the vicinity of Rosebud electrically equipped.

Fayetteville—With the installation of new motors, coal loading has been commenced at the Price Hill mines in this county, with Sam Dixon in charge of the operation.

Beckley—Beckley Coal Co. has purchased 550 acres of coal land on the Baltimore & Ohio between Weston and Hornor, from T. S. Stalnaker and Thomas E. Miles, of Hornor, and will arrange to develop the property at once.

Logan—Extensive improvements are contemplated by the Main Island Creek Coal Co. at its Logan County mines. Three large twin tipples will be erected at Littles Creek and 50 houses will be built.

One hundred new houses will be built for miners of the Amherst Coal Co. on Buffalo Creek in Logan County, the contract having been let to the Diamond Construction Co. of Huntington.

With the tipple at its mine at Wilbour on the Guyan River nearing completion, the Guyan Mining Co. expects to begin shipping coal early in May.

Fairmont—A shaft is being sunk by the Helens Run Coal Co., near this city, to develop a 300-acre tract of Pittsburgh coal.

Stotesbury—Included in the equipment recently added to the plant of the E. E. White Coal Co. is one 10-ton mainline and

three 6½-ton gathering locomotives, and 50 more mine cars to handle the increased number of men and tonnages.

Glen White—The present tipple at the Glen White plant of the E. E. White Coal Co. will be removed to make way for a new steel tipple, the contract for the erection of which has been awarded. The new structure will cost $150,000. It is possible, however, that no attempt will be made to build the new tipple until the end of the war.

Charleston—A large new tipple is to be built by the Mallory Coal Co. at its No. 2 mine on the Guyan Valley Division of the Chesapeake & Ohio.

Fifty new houses will be built by the Loraine Coal and Dock Co. at its Lorando plant in Logan County.

Two tipples will be erected in the near future by the Moyer Purseglove Co., of Cleveland, at its mines at Chauncey, where grading is being done for a new siding.

The Huff Mining Co. plans to begin shipping coal from its mine in the Guyan valley territory early in May, a new headhouse and tipple now nearing completion.

Two new electrically driven mining machines will be placed in the mines of the Wyatt Coal Co. at Sharon on Cabin Creek.

INDIANA

Terre Haute—The Eureka Block Coal Co. has sold the Dixie Bee coal mine, 12 miles south of this city, to Edward Shirkie, of Terre Haute, and C. A. Bicket, of Chicago, owners of the Bicket Coal and Coke Co., of Chicago. The purchase price was $400,000. The mine production will be increased from 400 to 2000 tons a day.

Sullivan—W. H. McGrew has leased the Klondyke mine, west of the city, to W. C. Brown, a Chicago capitalist, who will make extensive improvements and sink a new air shaft. He expects to employ a number of pick miners. He has leased the mine for seven years.

ILLINOIS

Schopen—A new coal mining town, to be called Standard, has been platted adjacent to the new Standard Oil mines near here. The real-estate operations are being promoted by D. K. Rice, of Gillespie, and F. M. Davis, of Alton. Mr. Rice promoted a similar town called Wilson near the new mine of the Northwestern Railroad Co., in the Gillespie neighborhood.

Freeburg—A thin partition between two rooms in the St. Clair mine near here is alleged to have been the cause of the death of one miner and the injury of another on April 20. The two men were shotfirers. They had touched off the fuses in one room and had gone to another when the shot in the first room blew the partition in on them.

OHIO

Beaumont—The Beaumont Coal Co. will soon start loading at its mine at this place, located on the Hocking Valley R. R. The mine is a shaft operation and its capacity will be in the neighborhood of 1200 tons daily when all equipment is installed. The property consists of 400 acres of No. 6 seam. The product will be sold through the Ajax Block Coal Co., of Columbus. W. T. Fassig is president; J. R. Schwartz, vice president, and T. C. Collins, secretary and treasurer.

Athens—The L. D. Poston Coal Co., chartered recently with a capital of $100,000, has taken over mines on the T. & O. C. R.R. at Millfield, which is nine miles west of Athens. Extensive improvements are contemplated, and it is desired to bring the daily capacity up to 1500 tons. The guiding spirit in the new mine is L. D. Poston, a grandson of the late L. D. Poston, who operated the first coal mine in the Hocking Valley district.

KENTUCKY

Providence—The Tax Supervisors of Hopkins County have handed the coal operators something of a jolt in assessing the mine property of the county, a number of big raises in the tax assessments having been made. The St. Bernard Mining Co. was raised $537,000; the Carbondale Coal Co., $42,000; Norton Coal Co., $49,000; Reinecke Coal Co., $80,000; Sunset Coal Co., $39,000; Coil Coal Co., $29,000; Rose Creek Coal Co., $57,000; Circle City, $27,500; and the Crabtree Coal Co., $29,000.

Nortonville—The high prices now being paid by coal-mine operators for labor is shown in the offers made by the Norton Coal Mining Co., which has been endeavoring to obtain men for loading coal. The company offers to men who have never been inside a mine $4 to $6 a day. The inside wage scale includes $4 a day to drivers; machine cutting, 10c. per foot, breast; 9c. per foot continuous; track layers, $4.25 a day; track helpers, $3.75; loaders, 40c. per car, No. 11; 35c. per car, No. 9; pumpers, $3.75 a day; timber men, $4 a day. These wages would be high for steady employment, and in fact are high in any event; but even at such wages it is a hard problem to hold men unless the mines can secure full supplies of cars, or at least better than a 50 per cent. supply.

Jackson—The Buckhorn Coal and Lumber Co., recently incorporated with a capital of $150,000, plans the development of 6000 acres of land on Middle Fork River. This land is covered with white oak timber, which the company proposes to cut mainly into railroad ties, some of which will be utilized in laying railroad lines in to get at the coal.

Middlesboro—J. T. Franklin, president of the United States Coal and Coke Co., was recently in Middlesboro, en route to Knoxville. Mr. Franklin stated that the company had increased its capacity to 30 cars a day, and expected to get the production up to 60 cars before long.

Personals

Lieut.-Col. Warren R. Roberts, president of the Roberts & Schaefer Co., engineers and contractors, of Chicago, Ill., is executive officer in charge of the construction branch of the "Construction Division" of the United States Army. This division does all the construction work in the United States and its possessions for all other divisions or

LIEUT.-COL. WARREN R. ROBERTS

bureaus of the army. Lieut.-Col. Roberts has been in engineering and construction work for 30 years. Some 20 years ago he organized the Roberts & Schaefer Co., which has since gained national prominence in the designing and building of all kinds of coal-handling plants, including coal-mining plants, coal washeries, locomotive coaling stations and coal dock bridges. Although Lieut.-Col. Roberts has been in the Government service since October, 1917, he still retains his office as president of the Roberts & Schaefer Company.

E. J. Payne of Charleston, W. Va., has been made sales manager for the Main Island Creek Coal Co. Mr. Payne was formerly with the E. J. Payne Coal Co. and was also connected with the Amherst Fuel Co. His headquarters will be at Huntington.

R. E. Almstead, of Huntington, W. Va., has been appointed as fuel inspector of the northeastern fuel administration district of Kentucky. He will have under his jurisdiction the counties of Boyd, Carter, Johnson, Lawrence, Floyd, Pike and Letcher. Mr. Olmstead has been an inspector of railroad fuel.

W. J. Heatherman, of Maxine, Boone County, West Virginia, has been appointed chief of the State Department of Mines, to succeed Earl A. Henry, whose term expired on Apr. 30. Mr. Heatherman has filled practically every position in the mines. He has been superintendent of the Island Creek Coal Co., in Logan County, and superintendent of the various mines of the Clinchfield Coal Corporation, in Virginia. He is 36 years old.

Obituary

Patrick Dougherty, a member of the mine inspectors' examining board for Luzerne and Carbon Counties, Pennsylvania, died on Apr. 23, after a few days' illness of pneumonia.

George Davis, of Drifton, Penn., one of the first and oldest miners of the Lehigh region, died on Apr. 26, at his home. Up to a few years ago, when he was compelled to retire on account of infirmities he had charge of the coal preparation department of Coxe Bros. Co., and was considered an authority on breaker construction.

Gustav Boehmer, president of the Boehmer Coal Co., who had been in the coal business in St. Louis, Mo., for 30 years as operator and distributor, died Saturday night, April 20, at his home, 5322 Von Versen Avenue, in that city. He was 69 years old. He had been in ill health since he sustained a stroke of paralysis three years ago.

Publications Received

Accidents at Metallurgical Works in the United States During the Calendar Year 1916. Compiled by Albert H. Fay. Department of the Interior, Bureau of Mines. Technical Paper 201. Unillustrated, 17 pp., 6x9 inches.

Technology of Salt Making in the United States. By W. C. Phalen. Department of the Interior, Bureau of Mines. Bulletin 146. Mineral Technology 20. Illustrated, 141 pp., 6x9 inches.

Coal-Mine Fatalities in the United States, 1917. Compiled by Albert H. Fay. Department of the Interior, Bureau of Mines. Unillustrated, 35 pp., 6x9 inches.

Nineteenth Annual Report of the Mining Industry of Idaho. For the year 1917. Robert N. Bell, state mine inspector. Illustrated, 129 pp., 6x9 inches.

Fifth Annual Report of the State Inspector of Coal Mines, Colorado, 1917. State Department of Mines, James Dalrymple, Chief Inspector. Unillustrated, 96 pp., 6¼ x 9¼ in.

Annual Report of Coal Mines for the Year Ending Dec. 31, 1917. State of Washington. By James Bagley, State Mine Inspector, Seattle. Unillustrated, 53 pp., 6 x 9 in.

Handbook of Instruction for Operating Ironton Storage Battery Locomotives. Ironton Engine Co., Ironton, Ohio. Illustrated, 32 pp., 3½ x 6¼ in. Though intended primarily for those who are operating the types A, D and E Ironton storage-battery locomotives, this compact vest pocket handbook contains information that will prove of undoubted benefit to any one operating any type of locomotive. The company states that it will gladly send copies of this book to anyone using electric storage-battery locomotives, whether or not they are Irontons.

Trade Catalogs

Sirocco Mine Fans. American Blower Co., Detroit, Mich. Catalog. Pp. 56; 8½x11 in.; illustrated. Contains valuable data for mine owners and engineers, and includes complete information on mine ventilation, consisting of diagrams, typical arrangements, methods of calculating fan requirements and additional engineering data. It is in reality a textbook on the subject of mine ventilation and will suggest ways of handling particular problems.

Keeping Your Trucks in Service. Cutler-Hammer Manufacturing Co., Milwaukee, Wis. Folder. Pp. 6; 8½x11 in.; illustrated. Describes C-H sectional battery charging

equipment for battery locomotives and industrial electric trucks. Two pages are devoted to illustrating a number of large and small equipments in industrial establishments, piers and railroad terminals.

Mack Motor Trucks. International Motor Co., New York City. Catalog No. 33. Pp. 66; 8½x12 in.; illustrated. Describes Mack Model "AB" trucks of 1, 1½ and 2 ton capacities, with worm or chain drive.

Levin Oxygen and Hydrogen Generator. Electrolytic Oxy-Hydrogen Laboratories, Inc., 15 William St., New York. Bulletin G. Illustrated, 4 pp., 8½ x11 in. Describes a small, compact generator of the unit type and enumerates its advantages over other types.

Mack Trucking Among the Clouds. International Motor Co., New York City. Catalog No. 6. Pp. 70.; 8½x12 in.; illustrated. Contains specfications of the new model "AC" Mack chain driven, heavy duty motor trucks, which are built in three capacities—3½, 5½ and 7½ tons, with wheelbases of 156, 168 and 180 in. in each capacity.

Supplement No. 1 to General Catalog No. 16. Ohio Brass Co., Mansfield, Ohio. Pp. 51; 5¾x8¾ in.; illustrated. This catalog contains additions and improvements to the O-B materials listed in the company's large catalog, which describes overhead materials, rail bonds, car equipment, specialties and high tension porcelain insulators.

C-H Pendent Switches. Cutler-Hammer Manufacturing Co., Milwauke, Wis. Folder. Illustrated, 4pp., 3½ x 6 in. A two-color envelope folder which illustrates and describes both single and two circuit brass shell and all porcelain pendent switches. The operating push buttons are a part of the mechanism and do not loosen up, twist or become lost.

Industrial News

New York, N. Y.—The Porto Rico Coal Co., 1 Broadway, has filed notice of an increase in its capital from $250,000 to $750,000.

Shamokin, Penn.—The E. C. Jones Coal Co., 40 North Seventh Street, has taken bids for the construction of a new one-story coal washery at its plant near Shamokin to cost about $20,000.

Baltimore, Md.—In connection with other extensive improvements, the Wright & Gibson Co., of Pittsburgh, Penn., is planning for the construction of a new tipple at its local plant.

Buffalo, N. Y.—The Seneca Coal Mining Co. announces that after May 1 its general offices will be located at 708-712 Fidelity Building. The need for additional space was responsible for the change.

Middlesboro, Ky.—The Hawley Coal Co., which recently increased its capital to $50,000, is now developing approximately 100 acres of coal lands, having a daily output of about 100 tons.

Wilkes-Barre, Penn.—The George F. Lee Coal Co., Miners Bank Building, has completed plans for the construction of a new one-story coal breaker, to have a capacity of 500 tons. Frank B. Davenport, Coal Exchange Building, is engineer.

Pittsburgh, Penn.—The Pittsburgh Coal Co. has contracted with the Roberts and Schaefer Co., of Chicago, for the installation of Marcus picking table screens in its Moon Run and Partridge tipples, in Pennsylvania.

Gormania, W. Va.—The Cover Coal Co., Piedmont, recently incorporated with a capital of $20,000, is planning for the immediate development of about 500 acres of coal lands near Gormania, to have a daily output of about 300 tons.

Fairpoint, Ohio—The Clarkson Coal Mining Co., of St. Paul, Minn., has contracted with the Roberts and Schaefer Co., Chicago, for a large storage plant for run-of-mine coal at Fairpoint. The plant is now under construction.

Clearfield, Penn.—The Potts Run Land Co., miners and shippers of bituminous coal, announces that it has changed its name to the Potts Run Coal Co. The corporation is to continue under the same management as heretofore.

Norton, Va.—The Hurt Coal Co. has completed its organization plans and will commence work at once on the development of 35 acres of coal lands, to have an initial capacity of about 50 tons daily. T. V. Hurt is president and manager.

Jefferson City, Mo.—Wallace Crossley, Missouri fuel administrator, has issued an order prohibiting the shipping of coal in carload lots to persons other than licensed wholesale and retail dealers. The order is intended to check snowbirding.

Whitesburg, Ky.—The Elkhorn Superior Block Coal Co., which recently increased its capital from $35,000 to $100,000, is planning for the installation of new electrical equipment in its plant in connection with other extensive improvements and additions.

Lynchburg, Va.—The Chesapeake & Virginian Coal Co., Inc., Agent, has removed its Huntington, W. Va., office from the Day and Night Bank Building to Rooms 210-211 Robson-Prichard Building. Joseph Maloney is the company's Huntington field agent.

Knoxville, Tenn.—Myers-Whaley Co., manufacturers of shoveling machines for underground and surface work, announces that it has appointed J. P. Cotter, Post Office Box 584, Sydney, Nova Scotia, as agent for its machines in Nova Scotia and Newfoundland.

Chicago, Ill.—The Paragon Electric Co., formerly located at 9 South Clinton St., has moved to larger quarters in the Old Colony Building, 37 Van Buren St. The concern, among a number of other specialties, manufactures "Ironite," which is said to be the strongest wire for mine telephones.

New York, N. Y.—The Bureau of Construction and Repair of the Navy Department has awarded contract to the Amburson Construction Co., 61 Broadway, for the construction of four reinforced-concrete fuel oil and coal barges to be used in New York harbor. Each barge is to have a hold capacity of 800 tons.

St. Louis, Mo.—The St. Louis Coal Committee is sending out license applications to all retailers in St. Louis. Secretary Perrow estimates that 80 dealers with tracks and 400 without tracks will be required to take out licenses. No plan has been worked out here yet for supervision of the dealers in less than wagon-load lots, who are said to number about 800.

Columbus, Ohio—When George A. Borden, president of the Columbus Board of Purchases, went to open bids on approximately 30,000 tons of coal for various city departments, Apr. 2, it was found that none had been submitted. Coal producers and jobbers were loath to bid under present unsettled conditions. It was announced that the city will buy from the open market for the time being.

Charleston, W. Va.—The Federal Coal Co. has been incorporated by E. M. Johnson, of Charleston; John E. McCully, of Philadelphia; Judson E. Harney, of Scranton, and others, with a capital stock of $3,000,000, to operate mines in the Sherman section of Boone County, with offices in Charleston. The company owns a large acreage of land, much of which has valuable coal deposits on it.

Springfield, Ill.—The Springfield Terminal Railroad Co. has filed a petition with the Illinois Public Utilities Commission asking permission to construct an extension of its line to the site of the Clear Lake mine and to cross the Illinois traction system at grade. The object of the extension will be the transportation of coal from the mine to the Chicago & Alton, C. P. & St. L., and other connecting railroads in Springfield.

St. Louis, Mo.—The first annual meeting of the Missouri State Retail Coal Merchants' Association will be held at Jefferson City, Mo., on Thursday and Friday, May 9 and 10. Lieut.-Gov. Wallace Crossley, Federal Fuel Administrator for Missouri, will talk to the dealers, and T. Percy Bryan, of Kansas City, will discuss the retailers' problems. The speaker for the second day will be K. P. Gregg, of Gregg & Co., industrial engineers, who will talk on the matter of trade surveys.

Huntington, W. Va.—The Peter Cave Coal Co. was organized here and will operate on Horse Creek in Lincoln County, with offices here. I. J. Harshbarger is president, B. Pauler is vice-president, L. J. Corbly is secretary and Julius Broh is treasurer. D. J. Pancake will be general manager and Frank Kerns superintendent. All of these, with J. A. Baird, will make up the board of directors. The company has 500 acres of coal, with a 6-ft. vein, and expects to be mining it by June 1.

Ithaca, N. Y.—Federal control of the New York State barge canal may mean the establishment of a terminal at Ithaca, N. Y., for the transshipment of anthracite coal from the Pennsylvania mining region to the main canal line. This waterways system will be operated to relieve the traffic congestion on the railroads, and Ithaca is the logical connecting link between the railroads leading from the mines and the barge canal. Thus coal shipped over the Lehigh Valley and Lackawanna lines to Ithaca may be sent east, either to the New England industrial centers or New York City, or to points west.

St. Louis, Mo.—St. Louis retailers, at a conference with the St. Louis Fuel Committee, asked that action be taken to discourage manufacturers from buying coal in quantity and distributing it among their employees. They argued that it was unfair for the manufacturers to sell to their employees at a considerably cheaper price than the prevailing retail price during the summer months and when coal is scarce in the winter to call on the coal men to supply their needs. They urged that an order be issued requiring domestic consumers to buy from the dealers. The committee has the request under consideration.

Cincinnati, Ohio—At a meeting of bondholders of the Marmet Coal Co., held in Cincinnati a few days ago, a committee representing the majority indicated its willingness to accept an offer of $250,000 made by eastern interests for the company's coal, gas and railroad properties at Butler, W. Va. J. Kapfer, secretary of the committee, will receive the assent of other bondholders up to July 15, after which steps will be taken to wind up the company's affairs. All indebtedness has been liquidated except the bonds, and the company's properties can now be sold to good advantage, their total value being about $1,000,000.

Dallas, Tex.—Wiley Blair, Federal Fuel Administrator for Texas, has issued an order regulating the retail distribution of coal and coke in Texas, and designed to insure a fair and equitable distribution of fuel to domestic users in Texas. The text of the orders follows: "By virtue of authority vested in me by H. A. Garfield, United States Fuel Administrator, it is hereby ordered that carload shipments of coal shall not be sold either directly or indirectly by coal operators, producers, jobbers, commission merchants or retail coal dealers to individuals, firms or corporations, for domestic use, either for themselves or for distribution to one or more domestic customers."

Pittsburgh, Penn.—Effective May 1, 1918, the name of the Asbestos Protected Metal Co., of Pittsburgh, was changed to Aspromet Co. When this company was established in 1905, its sole product was asbestos protected metal. The initial product met with universal favor and resulted in the company complementing the same by adding to its line other building materials that were used and bought by the same people who use and buy asbestos protected metal. Now the company has a complete line of building material specialties, many of which contain neither asbestos nor metal in their make-up. Thus the descriptive name "Asbestos Protected Metal Co.," which originally served so well became restrictive to the point of being misleading; hence the change.

Milwaukee, Wis.—The Wisconsin Coal and Dock Co. is improving its dock near the harbor entrance. By straightening the harbor line about half an acre of storage space is gained. Concrete revetment and new unloading bridges are features of the enterprise, which will consume $100,000 or more. The new dock of the Milwaukee-Western Fuel Co. is almost completed. It extends from Muskego Ave. to Sixteenth St. on the Menomonee River, and is one of the finest receiving yards in the Northwest. It has capacity for storing 200,000 tons. It is equipped with an 8-ton man-trolley bridge capable of unloading 500 tons per hour. Nothing has been done as yet to restore the buildings and machinery in the yard of the Kanawha Fuel Co. at Sixteenth St. bridge, which were burned during the winter.

Columbus, Mo.—Dean E. J. McCausland, of the University of Missouri, has issued a statement, based on experiments at the university to determine the keeping quality of Missouri coal, that deterioration of stored coal is negligible and that there is practically no danger of spontaneous combustion. "The ordinary grades of coal used for domestic purposes," he says, "lose very little in fuel value by storage of a few months. Furthermore, dry coal placed in storage in quantities usually needed for the individual householder is not likely to be subject to spontaneous combustion. The coal should not be sprinkled when it is placed in the bins, nor should it be sprinkled during the season of storage to keep down the dust. Better a little dust than take any chances of reducing fuel value or causing combustion of the fuel."

MARKET DEPARTMENT

Weekly Review

Poor Outlook for Next Winter's Coal—Domestic Orders Plentiful—No Great Demand for Steam Sizes—Car Shortage As Bad As Ever—Bituminous Mines Still Working Short Time

THERE is as yet no good reason to change the view that this country will be faced with a fuel shortage next winter. Only a very rapid and a very material betterment in car service can prevent what now seems inevitable. The Fuel Administration is disturbed because its eyes are focused on next winter; the Railroad Administration appears serene and seems to be happy in the fact there is no crisis today.

Statistics have been compiled to show that record tonnages of anthracite are being produced, but the consumer is anxious to know what has become of the coal. He cannot burn statistics, though he is being furnished with statistics to burn. The dealer is reluctant to accept any more orders, for he is already at his wits' end to know how he is to make deliveries from the meager stocks in his yard. In the meantime the public in most eastern states has responded to the "order your coal early" pleas of the authorities, and then has had to wait, like Micawber, for "something to turn up"; hoping that the "something" will be a plentiful supply of coal before next winter's frosts. In the West many mines are idle because John Skelton Williams refuses to purchase and store coal for the railroads.

Business in the steam sizes of anthracite is quiet, though here and there a little contract activity in these grades is reported. When the railroads begin to buy soft coal, and when the difficulty of procuring bituminous coal becomes more evident, it is believed there will again be interest in the steam sizes.

In an effort to protect the supply of anthracite to the Middle Atlantic and New England States, the zoning plan was further tightened this week by an order from the Fuel Administration barring the shipments of hard coal to the South without special permit.

The users of soft coal are up against it, too. Bituminous mines will never be able to work to full capacity under existing conditions. More engines and more cars are needed. The fact that this has been known for some time makes it all the more regrettable that a remedy has not been applied before now. Right at this time, when every bituminous mine in the country should be working at full blast, operators from a number of districts are reporting that their men are disgusted with working only one or two days a week and are leaving for other parts and other jobs.

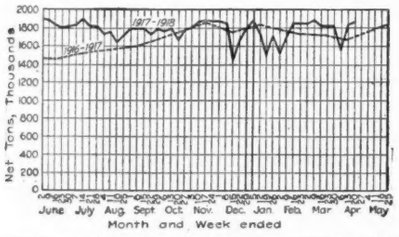
The question of the price to be paid for railroad fuel is still unsettled, and this, too, is having an adverse effect on production. Lack of ships at tidewater, where thousands of cars are tied up, and the tardiness of manufacturers despite high demurrage rates to unload cars on their sidings, furnish additional reasons for railroad congestion and car shortage.

The Government has already recognized that a radical readjustment of transportation facilities is necessary to the speed-up program of our war industries. The Pennsylvania R.R. and the Baltimore & Ohio, which serve the most important eastern coal fields, have practically given over their eastern divisions to the hauling of coal, coke, steel and munitions originating on their own lines. The long-haul business to Chicago has been eliminated.

The large tonnage of coal that must be rushed to the lake ports for transshipment to the Northwest will undoubtedly have its effect on the quantity of coal available for storage in many parts of the East, and it is not likely that much coal will be stored until the lake season closes. This will be sometime during the latter part of October or early in November.

COAL PRODUCTION

The output of bituminous coal increased 366,000 net tons, or 3.4 per cent., during the week ended Apr. 20, compared with the week previous. Total production (including lignite and coal made into coke) is estimated at 11,230,000 net tons, an average production per working day of 1,872,000 net tons compared with 1,811,000 the previous week and 1,680,000 net tons in April 1917. Total production of beehive coke is estimated on basis of railroad shipments at 655,000 net tons, an average per working day of 109,000 net tons compared with 112,000 net tons for the week previous.



Beehive Coke—The 63 operators reporting produced 318,465 net tons of coke during the week ended Apr. 20. The ratio of production to capacity increased from 67.8 per cent. during the week previous to 71.6 per cent. The improvement was made possible by an improved supply of cars, losses attributed thereto amounting to 10.9 per cent. of full-time capacity compared with 13.9 per cent. for the preceding week. The same operators shipped 154,650 tons of coal, or 37.7 per cent. of their capacity.

Byproduct Coke—Byproduct coke operators for the week of Apr. 20 slightly exceeded their performance of the week previous. Production by these operators was equivalent to 88 per cent. of their full-time capacity. Losses attributed to lack of coal rose slightly from 5.5 per cent. the week of Apr. 13 to 5.7 per cent.; losses attributed to labor trouble declined from 0.5 per cent. to 0.1 per cent; losses attributed to repairs to plant declined from 5.2 per cent. to 4.5 per cent; no market losses remained the same as the week previous, 0.3 per cent., and losses attributed to all other causes rose from 0.6 per cent. to 1.4 per cent.

Material increase in production is reported by New Jersey and Pennsylvania. Ratio of production to full-time capacity of New Jersey operators rose from 81.0 per cent. the week of Apr. 13 to 84.7 per cent.; increased production being attributed to improved supply of coal. The ratio of production to full-time capacity of Pennsylvania operators rose from 79.4 per cent. to 81.7 per cent.

CARLOADS OF COAL AND COKE ORIGINATING ON PRINCIPAL COAL-CARRYING ROADS

	Week Ended			
	Mar. 30	Apr. 6	Apr. 13	Apr. 20
Bituminous shipments, 123 roads	189,546	160,178	188,311*	195,868†
Anthracite shipments' 9 roads	43,642	32,223	37,760*	39,147†
Beehive coke shipments, 4 roads	13,320	12,743	13,791*	13,455†

* Revised from last report. † Subject to revision.

BUSINESS OPINIONS

Dry Goods Economist—Prices for cotton fabrics do not seem likely to recede, and, in fact, may go higher. This is due to the fact that cotton for all, or nearly all, current manufacturing has been purchased at market prices and the cost of yarns is therefore established for some time to come. It seems assured that the cost of production will be increased in many cotton goods mills. Bleaching and finishing, too, will cost more next season than it did last.

Wool and Cotton Reporter—The woolen goods market is becoming more conservative in distributing goods at prevailing prices and in regard to the buying power of the ultimate consumer. Whether price regulation is near or far off is not apparent, but a development is expected whereby any accumulations will largely be disposed of. Standardization is believed to be one of the problems which are being worked out, and which require time.

Bradstreet's—While grain crop news continues favorable, low temperatures have deterred farm work and prevented crops already seeded from taking on growth. Further cuts in the output of pleasure automobiles have been ordered, flour milling is below normal owing to lack of materials, and launching of new enterprises of a miscellaneous character are held in check either by war restrictions, fear of being placed in the non-essential class or possible credit restrictions. Labor is in short supply, and further drafts for the respective militant forces tend to further deplete the number of available workers.

Marshall Field & Co.—Current wholesale distribution of dry goods is well ahead of

the corresponding period of a year ago. Road sales for both immediate and future shipments show good increases over the same week in 1917. Merchants have been in to market in about the same numbers. Collections are ahead.

Atlantic Seaboard

BOSTON

Situation drifts without material change. Railroad fuel situation still somewhat mixed. Government requisitions on operators continue for large tonnages. More "contracts" have been made, but there are many steam-users as yet uncovered. Hampton Roads show slight improvement. New River differential not a good sign. Much anxiety over outlook and fuel authorities beset with inquiries. Anthracite deliveries by water gradually increase.

Bituminous—While there is talk of "priority lists" and shipments that are to be ordered from Washington, the volume of coal into New England shows a steady loss as compared with receipts a year ago. There are nearly as many emergency cases presented to the fuel authorities from day to day as there were in January, and with relatively few exceptions industrial plants are forced to run on a hand-to-mouth basis. Shipments of water coal are somewhat larger than a month ago, but there is not the improvement that is necessary to insure the continuous supplies our essential activities will require. The situation is drifting along and already one of the normally heavy months for coastwise shipment has passed.

Assigned cars seem generally abolished, but apparently the railroad fuel problem is not so far advanced toward settlement as was generally supposed. It develops that because of the refusal of railroad purchasers to pay the commission legally established coal factors are busy placing tonnage that heretofore went to railroads, and sundry industrials are the beneficiaries. Some operators have of course been ordered to furnish a large proportion of output for engine fuel, but it is felt that this whole subject will soon be straightened out.

Bunker and other requisitions through Washington continue perplexing. Operators are not free to make commercial contracts to anything like the extent that was hoped and the result is a disappointment to many large buyers and a rather feverish effort on their part to get into line for water-borne coal. Undoubtedly the West Virginia factors are closing up more tonnage than they are likely to have, but the "contracts" are so full of holes that the shippers will suffer only in the opinion of those whom they will be unable to serve. Through Washington a large number of requisitions are being made upon the district representatives in behalf of various industries which are presumably without any contracts that yield shipments in sufficient volume. These orders are apparently rated as "Government" business and are, in fact, intended to be confined to those activities on the list of priorities recently issued under the authority of the War Industries Board. Inequalities in such a system are bound to creep in, and some better coördination should be devised than the routine that is now followed. The tonnages are heavy in the aggregate and, considering the number now on file, it is no wonder that operators are shy of closing contracts with New England plants, whether entitled to priority or not. The great effort now is for consumers to get on the priority list, and unless the latter is dealt with intelligently there is more than a chance there will be a repetition of the priority orders that worked such havoc last fall.

Meanwhile "contracts" are being made, sometimes with factors who really have a chance of securing coal but often with "purchasing agents" whose assurances are based largely on hope. In any case all arrangements are subject to Government orders and the seller assumes little obligation. The curious thing is that a lot of large buyers already feel so optimistic over current receipts, usually by water, that they promptly cease their purchasing of the steam sizes of anthracite or even the less desirable grades of bituminous. New England manufacturers are notoriously sensitive to "weak spots," and more than likely we shall have a period of light buying some time during the summer, notwithstanding the signs multiply daily that next fall and winter will see a much worse condition than last season. There are yet a great many plants that are not "covered," and these are regularly calling upon the fuel authorities for assistance from week to week. The number is larger than might be supposed, and to these should be added those who are relying upon shipments from the Baltimore & Ohio and Western Maryland railroads, where car supply shows regularly a shortage of more than 40 per cent. It is surprising how many New England buyers have put their faith in deliveries from the region tributary to those roads when they have been constantly warned to the contrary. Under present conditions it is hardly a natural all-rail movement to this territory.

The Hampton Roads piers show somewhat increased dumpings as compared with a week ago, but much more will have to be done before results can be regarded with any satisfaction. The New York piers also need radical treatment, and it is one of the hopeful signs that an official will be given the general supervision of dumping at the New York terminals. Tonnage over the Virginia piers is still affected by slow movement to tide and the generally poor car-supply, resulting in much curtailed operations.

The new $2.80 price per net ton f.o.b. mines for New River confers a differential of 35c. and almost the story of the balance of the year can now be written so far as concerns the smokeless coals. The Government departments will certainly bring pressure to bear on the shippers of the lower-priced output, the operators will be more or less indifferent because they cannot help themselves as to price, and generally there will be a heavy loss in tonnage. The big market for prepared sizes is much reduced through Federal regulations, and now through the same agency the New River operators partly because of heavy interest charges are handed a price that makes all the difference between narrow margin and handsome profit. The price will probably not be corrected until the months of heavy output are passed.

Anthracite—Receipts by water are gradually increasing, due more than anything else to the better movement of tows. The settled weather contributes to this result, and with many of the mines on a 90 per cent. output the outlook is a bit more encouraging. Rail deliveries have slackened again because of embargoes, but it is apparent the latter will be only of short duration.

NEW YORK

Shipments far below normal and dealers frantic because they cannot supply the demand. Weather conditions favorable for heavy consumption and next winter's supplies are being used. Public awake to the situation. Mayor Hylan providing for the poor. Bituminous for bunkers shows slight increase in supply. Commercial coal scarce.

Anthracite—The first week of the second month of the coal year finds the situation serious. Stocks are low and the demand for coal continues far above normal. Weather conditions remain unseasonable and favorable for heavy consumption, with the result that coal that should be used next winter is being consumed now. Production is far below what it should be to meet the demand, and operators realize that they could dispose of twice as much coal if they had it.

The public is thoroughly aroused to the situation and there is a fear that the country may be facing a coal famine next winter. They realize that the only salvation lies in the solution of the transportation problem and, having already placed their orders for next winter's supply, are now urging delivery on the retail dealer, while the latter is keeping the shipper hustling. The wholesale offices are thronged with dealers from early until late, all anxious for shipments of any sizes down to and including pea.

Some slight improvement is expected in the situation as a result of the order of the Anthracite Distribution Committee that 19 states are excluded from shipments of anthracite. The statement accompanying the order says that the situation is so grave in New England and the Middle Atlantic States that liberal shipments must be made into this territory, even though such shipments curtail the amount of coal that producers and distributors desire to send into the West.

There was an increase of 1387 in the number of cars shipped during the week ended Apr. 20 over the previous week, according to Government reports. Distribution is being made as equitably as possible under the supervision of the Anthracite Distribution Committee.

Mayor Hylan of this city, in order to prevent a repetition of last winter's situation, when the poorer class could not obtain coal for heating purposes, has directed certain of his department heads to provide for storing not less than 300,000 tons of coal. He says he has been promised the coöperation of the Greater New York Retail Coal Dealers Association, claiming a membership of 3000 coal peddlers.

Efforts to contract for the steam sizes are being made by most large consumers, but shippers are not inclined to sign up; for shipments, which, unless there is a decided improvement in transportation facilities, will be uncertain. Wherever it is possible buckwheat No. 1 is being stored. Rice and barley are free, the latter particularly so.

Current quotations, per gross ton, f.o.b. Tidewater, at the lower ports are as follows:

	Circular	Individual
Broken	$6.15	$6.90
Egg	6.05	6.80
Stove	6.30	7.05
Chestnut	6.40	7.15
Pea	4.90	5.65
Buck	4.45@5.15	4.80@5.50
Rice	3.90@4.10	4.80@4.50
Barley	3.40@3.65	3.00@4.00
Boiler	3.65@3.90	.....

Quotations for domestic coals at the upper ports are generally 5c. higher on account of the difference in freight rates.

Bituminous—The only bright spot in the situation here is in the slightly increased quantity of coal available for bunkering purposes. Commercial coal is scarce, and the situation remains serious. Car supply on most lines indicates a slight improvement but Tidewater receipts are about on a level with the previous week.

The trade is anxiously awaiting a decision from Washington with reference to the railroad fuel situation. In the meantime some of the mines have been receiving no cars at all, while others are better favored.

Large consumers are showing a desire to lay in stocks for the coming winter, but are meeting with no success owing to the bad shipping facilities and the fact that most of the coal is either taken by the railroads or by priority orders.

Conditions at the mines, from a labor standpoint, are serious. The miners are disgruntled because of the lack of work and every day it is reported many seek employment elsewhere. Along the Baltimore & Ohio some of the mines reported having received about 40 per cent. of their car requirements last week. This is a slight improvement over the previous week.

The zoning system has not made any material difference in stocks here. Free coals are scarce, while contract holders are not receiving anything like their full requirements.

BITUMINOUS PRICES

	F. o. b. New York Gross	Mine Price Net	Gross
Central Pennsylvania	$5.06	$3.05	$3.41
Maryland:			
Mine-run	4.84	2.85	3.19
Prepared	5.06	3.05	3.41
Screenings	4.50	2.55	2.85

PHILADELPHIA

Anthracite deliveries continue light. Dealers loath to book additional orders. Retailers quizzed again. Rail deliveries held back. Customers anxious for coal. Retail zone plan rumored again. Heavy tide shipments. Culm question up. Bituminous situation unchanged. Lack of cars makes situation most serious.

Anthracite—Conditions as to deliveries show no signs of improvement and the dealers are growing discouraged. On account of the continued dearth of receipts the dealers are showing little incentive to book additional business, which is in somewhat sharp contrast to a few weeks since, when certain dealers made strong efforts to book orders from new customers. It now looks as if the near future will see the dealers holding themselves strictly to the business of their old customers. This was emphasized at a recent meeting of the Philadelphia Coal Exchange, which was addressed by Chairman Lewis of the local fuel administration. Mr. Lewis suggested to the dealers that as he saw the situation it was really useless for them to try to gain each other's customers. He assured them that from his knowledge of the situation every dealer would need all the coal he could obtain for his own customers, and it was for this reason that earlier in the season Mr. Lewis had discouraged any new dealers from engaging in the retail trade. It can be said that the dealers have given full weight to Mr. Lewis' advice, as the trade has a growing high regard for him, as is shown by the increasing number of members in the coal exchange. Adopting his suggestion that he considered it wisdom

under the circumstances to join Philadelphia's representative body of retail coal men. 24 firms presented their names for membership at this week's meeting. This makes a total of 42 within a month.

That the fuel administration is alarmed over the present state of affairs is shown by a recent questionnaire issued from that office. Detailed information is asked for as to April shipments in sizes, unfilled orders in sizes, the names of the delinquent shippers, etc. This refers to domestic coal and it has been made known that strenuous efforts are to be made to induce the shippers to increase this city's quota by at least 10 per cent. over last year. The dealers are also called upon to furnish lists of plants to which they furnished buckwheat coal where bituminous might be utilized. It is also understood they will be forbidden to deliver pea coal to small heating plants for private homes in lieu of No. 1 buckwheat. Last winter, when buckwheat was almost as high in price as pea coal, and sometimes even higher, the dealers were called upon for the latter size and now in many cases it is preferred. The dealers are giving the information as promptly and as thoroughly as possible, yet they are wondering where the buckwheat coal is to come from, as in their previous inquiries to the producing companies they were informed that all this coal was needed for the regular steam trade. For this reason it is not at all likely that the dealers will be able to procure any of this size for domestic use, unless the administration should order it diverted to them.

The dealers are seriously handicapped by the slow delivery of what little coal has been consigned to them. In many cases shipments made in the latter part of March are undelivered, and most dealers have coal outstanding for two and three weeks. One seldom hears of rail embargoes these days, and it is known that the railroads are not tied with coal en route. It is believed that owing to a congestion of general freight coal shipments in this direction are being greatly restricted. It is also known that tide shipments to coastwise points continue especially heavy via the local piers.

Recently the fuel administration announced it was their earnest intention, if possible, to have at least 60 per cent. of this city's family coal for next fall and winter's consumption delivered before the first of October. This is a lengthening of the period, as originally announced, by one month. The public has responded and filed their orders as requested, but the deliveries for April have fallen far short of the proportion as planned by the dealers. One cause for this was the cold and stormy weather that made necessary the delivery of coal in small quantities for immediate use. The fact remains that one valuable month's time has passed with little progress having been made in storing coal. Teams are standing idle, all the costs such as feed, labor and equipment are mounting and the shippers, apparently, are not sufficiently optimistic to quiet the fears of the dealers. Many of the retail customers, now that they have had their orders placed for several weeks, are becoming anxious because no deliveries are being made to them. Since they became impressed with the importance of ordering early they are now becoming insistent that they be given coal. Their anxiety is only increased by the reports in the papers of the record production of anthracite at the mines in March and with promises of even better in April, and when the dealers here say they are not getting the coal they cannot understand it.

We have learned that for several weeks past the fuel administration has been working on a new scheme of distribution for this city. It seems that the city has been divided into zones and it is the intention to call upon the shippers to consign the required tonnage into each zone. It is claimed this will overcome the grievous errors of the past winter when sections of the city with a much smaller population than others, but with a greater number of dealers, received more coal on the latter account.

With the tonnages of soft coal cut by the authorities for the use of florists and breweries the anthracite shippers interested in culm have raised the question whether they will be allowed to offer this material to the above industries. At present there seems to be some hitch, but the culm shippers take the stand that there is an unlimited amount of this fuel to be had, and its sale to the restricted industries can in no way affect the general situation except favorably. The only objection that could be raised would be that of taking cars from other sizes.

The anthracite steam business is practically all sold up and despite numerous inquiries there is no free coal of any size to be had, unless possibly barley coal.

The prices per gross ton f.o.b. cars for line shipment and f.o.b. Port Richmond for tide are as follows:

	Line	Tide		Line	Tide
Broken	$4.90	$6.05	Buckwheat	$3.15	$3.75
Egg	4.50	5.70	Rice	2.65	3.65
Stove	4.75	6.05	Boiler	2.45	3.55
Nut	4.85	6.10	Barley	2.15	2.40
Pea	3.45	4.35			

Bituminous—Some operators are willing to concede that there has been a slight improvement during the past week, due principally to a better car distribution. Certainly any improvement that has been felt is only slight, as reports continue to come in from mines working hardly more than half time for lack of cars. It is freely predicted that the production for April will even be lower than that for March. Despite the fact that the promise was made that the practice of assigning cars for definite loading would be discontinued, quite a fair proportion of empties sent in for loading this week were so designated, although it must be said the number is decreasing. The box-car question continues to agitate shippers, as quite a number of these cars were allotted this week, with instructions still holding that they can only be shipped westward.

BALTIMORE

Big boost in orders for anthracite despite warmer weather. Dealers complain of inability to get shipments. Soft coal supply easier.

Anthracite—Dealers over the city for the most part report a new rush of orders for hard coal deliveries over the summer months. Many of those ordering are urging immediate deliveries, apparently under the impression that they may not be able to get even two-thirds of their needs later. The activity, which has come despite the fact that warmer weather has set in, is undoubtedly due to the several public utterances of State Fuel Administrator Meyer that he would advise consumers to get their fuel supplies as early as possible. On the part of the dealers there is considerable complaint that there is not nearly enough coal coming through to take care of the more urgent of their customers. They rather discount the idea of urging consumers at this time, as it leads to complaint from those who place their orders and who do not see the coal coming through at once. Explanations that the coal will be delivered in the weeks to come and long before it is needed do not satisfy many people. Under this rush coal men can afford to be discriminating as to their deliveries, and in cases of poor pay are requiring checks or money with orders before they are definitely booked for early delivery.

Bituminous—The soft coal situation here eased up under diversions of considerable extent from coal congested at the Philadelphia & Reading connections, and which was originally destined north. This coal came through in large quantity to aid coastwise and export loading, and a considerable amount was also diverted for local harbor and line delivery. This diversion enabled the local fuel administration to care for a number of small canning and packing establishments that were without coal at the start of the food conservation season, and also to take care of those factories on the Pennsylvania R. R. lines which have been cut off from coal from long established mine connections on those roads by reason of the zone embargo. Much coal was loaded on small bay sailing and motor craft to be delivered at packing houses on the eastern shore of Maryland. It cannot be said that there is any surplus coal here, but the recent arrivals have enabled several important industries which were near the danger line to get in a little reserve stock. It is too early just now to predict just how the zone plan is to work out, especially as it is understood that certain railroad and consuming interests are working for modifications, in whole or in part.

Lake Markets

PITTSBURGH

Car shortage more pronounced. Fuel Administration orders get satisfactory preference. Lake shipments light.

There is still more complaint of car shortage at Pittsburgh district mines, and on the whole conditions instead of improving in the past week or two have really grown worse. It is clear that the railroads are quite unable to furnish the amount of transportation service required. They have shown at the same time that they have some measure of control over the situation in that they have been giving almost full car supplies to the mines that are working on Fuel Administration orders, whether for munition plants or for railroad fuel; but the extra supplies given such mines simply come out of the general store, and leave the mines operating on ordinary commercial orders with correspondingly fewer cars.

There continue to be small offerings in the market of coal loaded in box-cars, but as formerly these are chiefly of Ohio coal. There is hardly any Pittsburgh district coal offered in any kind of cars. The market remains quotable at the set limits, $2.20 for slack, $2.45 for mine-run and $2.70 for screened coal, per net ton at mine, Pittsburgh district, with an allowable 15c. brokerage in addition under certain regulations.

Thus far shipments of Lake coal have been light, although there has been a little movement for two or three weeks past, merely to cargo some of the vessels for their first trip up the Lakes. The regular vessel movement will not amount to much for several weeks, and meanwhile little coal will be shipped to docks.

TORONTO

Shipments less since opening of navigation. Consumers ordering largely, but deliveries restricted. Conference of retail dealers urged to prepare for shortage.

Receipts of coal from the mines have fallen off since opening of navigation, as much is being shipped by water to the upper lakes. The public generally are acting on the advice of the Fuel Controller and placing their orders early, but dealers as a rule are only supplying 1½-ton lots for immediate requirements. A conference of the Canadian Retail Coal Association held on Apr. 26, and attended by about 300 dealers, was addressed by R. C. Harris, Ontario Fuel Controller, who urged them to prepare for a shortage next winter by placing orders as soon as possible wherever they would be accepted.

Quotations per short ton for best grades are as follows: Retail anthracite, egg, stove, nut and grate, $10; pea, $9; bituminous steam, $9; slack, $8 to $8.50; domestic lump, $10; cannel, $11. Wholesale f.o.b. cars at destination, prices as fixed by Government: Three-quarter lump, unprepared, $6.11; prepared, $6.31; slack, $5.18.

BUFFALO

Coal situation little changed. Bituminous still plentier than anthracite. City distribution said to be better than in former years, but demand is greater. Loading for Lakes under way.

Bituminous—The situation does not change much. Coal is fairly plenty and promises to continue so, though the car supply is not good. Where there are cars in plenty the coal is in sufficient quantity. There are opinions given out by coal men that if cars were plenty a shortage of labor would be apparent, but so long as the labor supply is in excess of transportation it is a matter of doubt. As it is the men are often idle in the mines, waiting for cars.

Little or no surplus of bituminous has been reported, but some easily reached centers in Canada, as for instance Toronto are piled full of it. The reason is that the larger margin of profit given to jobbers there has sent many of them across the border, where they are doing much more business than they have done here since the price regulation was established. It is quite the common idea that the jobber is shelved here, unless he has some very close connections with good mines, which is something that most jobbers are unable to get. A few of them have formed such connections and are selling considerable coal, but that is far from being the rule. Even these say that it is hard to make a fair profit. They add that if what is expended in regulating the trade was turned in to the jobbers' profits the situation would be improved.

Apprehension centers on the situation as it seems likely to appear next fall. If all coal is taken up now as fast as it is offered, what will be the situation then, with the recollection of such a winter as the last one still fresh in our memories?

Bituminous prices continue at Government figures as follows: Thin-vein Allegheny Valley, all sizes, $4.45; Pittsburgh lump, $4.25; Pittsburgh mine-run, $4; Pittsburgh slack, $3.75; all per net ton, f.o.b., Buffalo.

Anthracite—The consumer complains as usual that his orders are not filled, or that at the best only a ton or two can be obtained. His applications are filed away and he must wait till his turn comes. One thing is in his favor. The price is expected to continue without change all summer, so that coal ordered now will not be anywhere up to 50c. a ton higher when he gets it. The shipping agents say that they are

distributing fully as much coal to the city trestles as formerly, and some of them even more than ever before; so they are not disturbed over the situation.

The effort of the consumers to lay in more coal than he needs seems likely to be given up. It was more or less common last year, but the heavy fines, that certain city merchants, mostly in the grocery trade, have been made to pay lately have set the householders to thinking. They do not really care to come under the same sort of regulation. At the same time the fear of running short of supplies is anything but easy to bear, so that the buyer as well as the seller is in a great quandary.

The Lake trade is not active yet. One company has loaded seven cargoes, of which 3200 tons has cleared for Chicago and 1440 tons for Milwaukee. The steamers began to leave here for the Upper Lakes on Apr. 27, a report having been received that the jam in St. Clair River was gone and the entire Lake route was open. The opening is late, but only one other shipping company is as yet ready to load water coal, which it will begin to do at once. The other agencies expect coal soon and are wondering where the newly-mined coal is going, as they should have a surplus here by this time.

DETROIT

Diversion to Lakes reduces movement of bituminous coal somewhat. Anthracite scarcity is not relieved. Much coal loaded on boats.

Bituminous—While the movement of bituminous coal into Detroit continues in considerable volume, jobbers say there is apparently some diminishing of shipments, which is accounted for by the requirements of Lake shippers and is also the result of the demands on transportation companies to supply car and motive power in handling coal from the mines to loading docks on the Lakes. The present supply, however, seems to meet needs of consumers for present consumption, though creating less favorable conditions for stocking up reserves.

Quite a number of large industrial consumers and public utility companies operating in this locality are reported to have made some progress toward acquiring stocks for future use. The circumstance that many of the manufacturing plants are without space available for storing coal in quantities larger than is needed to provide for a few days ahead necessitates maintaining shipments in rather steady volume, especially in view of the fact that nearly all factories and steam plants are being operated at approximately capacity in turning out work for the Government or products necessary for the completion of such work.

The users of steam coal show a well-sustained demand which, in the case of slack, the jobbers at times find it difficult to meet. Household consumers seem not especially eager to stock up with bituminous coal at present. Many of the retail yards have been able to acquire a good supply. The insistence of the state fuel administrator that no higher margin than $2.25 a ton is justified on deliveries to domestic consumers seems to be exerting a deterrent influence on distribution.

Anthracite—Household consumers are waiting for a more liberal supply of anthracite. With continued low temperatures thus far, the amount received has done little more than supply present needs, and dealers have been able to fill few of the orders received for next winter's supply.

Lake Trade—About 25 Lake freighters, many of them coal laden and all ice-bound, were held, some as long as 10 days, in Detroit River waiting for tugs to break through the ice blocking St. Clair River. The coal is badly needed at some of the upper Lake docks. It is estimated 600,000 tons were afloat May 1.

COLUMBUS

With the Lake trade slow in starting, and steam demand not as good as formerly, the coal trade in Ohio is not as active as in some former weeks. Domestic trade is active.

A state of uncertainty pervades the coal trade in Ohio. With the railroad fuel question partially reopened by John Skelton Williams, purchasing agent for the railroads, operators are at a loss to proceed. One of the effects of the reopening of the railroad fuel question is the backwardness of certain large consumers to place contracts, believing that lower prices may maintain. As a result things are uncertain and the total production is falling off, especially in certain sections.

The domestic trade is still the best feature of the business. Householders are taking the advice of the Fuel Administration and state officials, and many are laying in their coal supply for the coming winter. Dealers are good customers and are buying actively. A large percentage of the orders are for immediate shipment. Retail stocks are fairly large, but buying is continuing as many are desirous of having adequate stocks to take care of the rushing business. Retail prices are steady at the levels which have maintained for some time. Considerable Pocahontas is now finding its way into the local market.

The steam business is quiet, although there is a considerable tonnage moving. Stocks in the hands of the larger users are now adequate, and the smaller users are not anxious to increase supplies. Railroads are only taking fuel for current needs, as the railroad fuel question is still "up in the air." Few steam contracts are being closed at this time.

The Lake trade is also lagging because of ice in the upper Lake regions. Quite a few vessels have been loaded and have started, but most are held up at Detroit. Delay in starting the Lake trade is also caused by slowness in issuing permits by the Lake pool. Mine-run permits are only issued after an inspection of the mine. Thus practically no mine-run permits have yet been issued.

The output in Ohio fields has not been large. This is due largely to a car shortage which apparently is getting worse instead of better. Empties are slow in being returned to the mines. As a result the output in the Hocking field is estimated at 65 to 70 per cent. and about the same in the Pomeroy Bend field. In eastern Ohio car shortage is still bad, and the output is estimated at about 45 to 50 per cent.

Prices of short tons f.o.b. mines are as follows:

	Hocking	Pomeroy	East Ohio
Sized grades	$2.70	$3.05	$2.70
Mine-run	2.45	2.80	2.45
Screenings	2.20	2.45	2.20

CINCINNATI

Cool weather has kept consumption by domestic trade up, and demand for storage also continues strong. Slight improvement in car situation is noted.

Cold and rainy weather has prevailed in this section during the past week, serving to force into the market many domestic consumers who had used their winter's coal supply, and also accentuating the continued demand from those who are making an effort to secure coal for next season. The retail trade is not able to secure any supplies in excess of current deliveries, and the problem of the jobbers and operators also is that of getting enough cars moved to take care of current requirements. Great efforts are apparently being made by the Government authorities in charge of the railroads to improve the car supply at the mines, and incidentally to improve conditions at Cincinnati and other terminal points; but the confusion incident to the change of authority has not yet been straightened out, and this seems to be one of the principal causes for the difficulty in getting empty cars back to the mines. It is believed by operators and railroad men that by early summer there will be a greatly improved condition in transportation, but until the Federal railroad administration gets matters thoroughly into its hands not much relief is expected.

LOUISVILLE

Demand for domestic coal picking up, with consumers stocking much more freely and contracts from steam users showing much more activity. Conditions at mines practically unchanged.

Weather conditions have been such that domestic consumers have been burning fuel coal to a much greater extent than usual for April. However, the demand for immediate consumption is not so great. There is a heavy demand coming from residents, churches, schools, stores, etc., for stocking purposes. In steam coal more activity is being shown, and consumers who had been holding back have been signing up contracts in a lively manner during the past week. While little coal has been yarded by the retailers, indications are somewhat better than they have been. There has been a slight surplus of mine-run on the market within the past few days, most of this coal coming from wagon mines in western Kentucky, which have no open market for their output. In western Kentucky the labor situation is about the same as it has been, while the car supply is estimated at forty to forty-five per cent. of requirements.

The general rumor in Louisville, and one that has been accepted by both eastern Kentucky and western Kentucky dealers and operators, is to the effect that all Harlan and Straight Creek district coal will shortly be taken out of the Louisville market and diverted to the byproducts plants, which will leave Louisville dependent entirely on Jellico and western Kentucky mines. A prominent Harlan operator stated that while no formal action had been taken as yet, he felt assured that it would be forthcoming within a few days.

BIRMINGHAM

Local market active in both domestic and steam channels. Supply of both grades inadequate, and nonessential industries are feeling the shortage in steam fuel. Output improving slightly. Car supply as a whole continues good and adequate.

A strong and steady demand for both domestic and steam grades obtains in this market. Domestic dealers are exercising all diligence to secure every car of coal that they can get hands on, and at that are not making much progress in stocking their yards. There is a serious shortage in the supply of coal from the domestic mines, and unless production is materially speeded up retailers will not be able to secure anything like their winter requirements through the spring and summer months.

Only about three producers have taken the necessary steps to secure the additional 20c. per ton allowed by the Government for extra clean coal. According to the ruling of the Fuel Administration the retailer cannot add this 20c. per ton to his retail price without a permit from Washington. In furtherance of the step taken by the Administration to stimulate the production of clean coal, E. A. Holmes, district representative, has announced the appointment of J. deB. Hooper as chief coal inspector for Alabama, effective May 1.

Preferential shipments of steam coal are being made to essential industries as classified by the Government, and as a result, other classes of users are receiving the residue, the amount of such tonnage being uncertain and inadequate. The free coal supply has been further reduced by a heavy increase in priority requirements of the Southern Ry. during the past week.

This district is not suffering so far from the car shortage prevailing in other fields, and only a few isolated complaints have been reported. An increase in the price of cutting coal and in the wage schedule of mine workers will be placed in effect at all commercial operations May 15.

Coke

CONNELLSVILLE

Car supplies uncertain and no definite improvement recorded. Better supplies of byproduct coke, so that furnaces fare slightly better than in March.

While slightly better car supplies for the Connellsville region are reported in the past few days, the situation in general continues decidedly unsatisfactory. The general judgment is that April as a whole has shown no improvement over March. It is assumed by those familiar with both coke and coal conditions that the railroads are really doing considerable toward carrying out the Fuel Administration's instructions to provide the coke works with cars, in order to stimulate iron and steel production, but this conclusion is reached, not by observing the coke-car supplies by comparison with the requirements, but by observing that they are much better than the supplies furnished the coal mines in this territory, as coal-car conditions are much worse than coke-car conditions.

Taking the blast furnaces of the Central West as a whole, they have suffered less from coke shortage in the past two or three weeks than in March, but the improvement in their position, and only a small one at that, is credited to the production of more byproduct coke. In some cases byproduct operations have had a surplus over the requirements of their attendant blast furnaces, which they were built to serve, and in a modest way they have helped out a few furnaces that normally depend entirely on Connellsville coke.

There are scarcely any market transactions. The set prices remain: Furnace coke, $6; 72-hour selected foundry, $7; crushed, over 1-in., $7.30, per net ton at ovens.

The "Courier" reports production in the Connellsville and lower Connellsville region in the week ended Apr. 20 at 336,876 tons, an increase of 2585 tons, and shipments at 303,932 tons, a decrease of 10,444 tons.

Birmingham—The local coke market continues strong and the demand for both furnace and foundry coke is far in excess of the supply. The fuel administration has

announced a price of $8 per net ton ovens for Pratt beehive coke for furnace use, and $8.75 for 72-hour foundry product. The Blue Creek, Black Creek and Brookwood schedule is $8.75 per net ton ovens for foundry use. Production is still below normal, output being considerably crippled by shortage of coke labor. An increased labor schedule will be effective at all commercial ovens May 15, the furnace producing companies having already granted the increase. Coke is moving better with an improved supply of box-car equipment.

Buffalo—The situation does not improve, especially as complaint continues that the regular ovens are turning out a scant supply on account of lack of cars to carry coal from the mines. This turns the furnace demand to the byproduct plants, and those in this vicinity are producing all the coke possible in order to meet the demand.

Middle Western

GENERAL REVIEW.

The demand for size coal continues to grow, while slack, screenings and washed No. 5 drags.

So far as actual market conditions are concerned, there is a growing feeling that the shortage of size coal is increasing. At the same time fine coal, such as is used by almost all the large consumers, is plentiful on account of the failure of the railroads to start their buying. Some operators report that their business is becoming lopsided, and that they are now declining to accept any order for lump, egg or nut unless such an order is accompanied with an order for fine coal. In some northern Illinois districts operators are piling their fine coal on the ground in order to permit their mines to operate and ship domestic sizes. Maximum production has not been attained in any locality. In some instances tonnage has been curtailed due to the failure of the Central Illinois Public Service Co. to furnish power to the many mines with which it has long-time contracts to furnish electric power for cutting and hauling purposes.

By far one of the largest mining property deals of the year was consummated this week. The entire holdings of the Chicago & Carterville Coal Co., with two large producing mines at Herrin, Ill., was sold to the Chicago, Wilmington and Franklin Coal Co., of Chicago. The purchase price was $1,500,000. The acreage consisted of 5000 acres in Williamson and Franklin Counties, of which more than 4000 acres is farm land.

CHICAGO

Illinois and Indiana lump, egg and nut in demand; fine coal plentiful and sluggish.

Little can be said about Chicago market conditions. It has recently dawned on the public that if they are to be kept warm the coming winter it behooves them to get all the Illinois and Indiana coal they possibly can; therefore no difficulty is had in disposing of anything that is prepared in this market.

The hard coal situation here is not different from that existing in other western cities. Only about one tenth enough is arriving to take care of the requests. Eastern bituminous and Kentucky soft coal is not obtainable. The fine coal market continues to be dull. This is best explained by the fact that many of the large fine coal users have during the past year purchased mines and are producing their own coal.

Quotations in the Chicago market are as below, per net ton f.o.b. cart at mines:

	Williamson and Franklin	Saline and Harrisburg	Fulton and Peoria	Springfield	Carterville	Grundy, La Salle, Bureau and Will
Steam lump	$2.65@2.80	$2.65@2.80	$3.05@3.20	$2.65@2.80	$2.65@2.80	$3.35@3.50
Domestic lump	2.65@3.00	2.65@3.00	3.05@3.20	2.65@3.00	2.65@3.00	3.35@3.50
Egg or furnace	2.65@3.00	2.65@3.00	3.05@3.20	2.65@3.00	2.65@3.00	3.35@3.50
Small egg or nut	2.65@3.00	2.65@3.00	3.05@3.20	2.65@3.00	2.65@3.00	3.35@3.50
Stove	2.65@3.00	2.65@3.00	3.05@3.20	2.65@3.00	2.65@3.00	3.35@3.50
Chestnut	2.65@3.00	2.65@3.00	3.05@3.20	2.65@3.00	2.65@3.00	3.35@3.50
Pea	2.65@3.00	2.65@3.00	3.05@3.20	2.65@3.00	2.65@3.00	.....
Washed egg	2.85@3.00	.....	.....	.....	2.85@3.00	3.35@3.50
Washed stove	2.85@3.00	.....	.....	.....	2.85@3.00	3.35@3.50
Washed nut	2.85@3.00	.....	.....	.....	2.85@3.00	3.35@3.50
Mine-run	2.45@2.60	2.45@2.60	2.85@3.00	2.45@2.60	2.45@2.60	3.10@3.25
Screenings, over 1 in.	2.20@2.35	2.20@2.35	2.45@2.60	2.20@2.35	2.20@2.35	2.85@3.00
Washed slack	2.15@2.30	2.15@2.30	2.50@2.65	2.50@2.65	2.15@2.30	2.85@3.00

	Smokeless					
	Clinton and Sullivan	Knox and Greene	Eastern Kentucky	Pocah. and W. Va.	Penna.	Hocking	West Va. Splint
Dom. lump	$2.65@2.80	$2.65@2.80	$3.10@3.25	$2.60@2.75	$2.70@2.85	$3.05@3.20	$2.85@3.00
Steam lump	2.65@2.80	2.65@2.80	3.10@3.25	2.60@2.75	2.70@2.85	3.05@3.20	2.85@3.00
Egg	2.65@2.80	2.65@2.80	3.10@3.25	2.60@2.75	2.70@2.85	3.05@3.20	2.85@3.00
Small egg or nut	2.65@3.80	2.65@2.80	3.10@3.25	2.60@2.75	2.70@2.85	3.05@3.20	2.85@3.00
Mine-run	2.40@2.55	2.40@2.55	2.85@3.00	2.45@2.60	2.45@2.60	2.70@2.85	2.60@2.75
Screenings	2.15@2.30	2.15@2.30	2.60@2.75	2.10@2.25	2.10@2.25	2.55@2.70	2.35@2.50

MILWAUKEE

Anthracite advanced 80c. per ton. A liberal supply expected during May. Bituminous being delivered freely at $7.25. Illinois coal zone extended.

The Federal Fuel Administrator has advanced anthracite coal 80c. per ton in the Milwaukee district. Egg is now $10; stove, $10.25; and nut, $10.35, with the usual charge of 50c. per ton for carrying in. Coke is being delivered in one-ton lots at $9.75, carried. Bituminous for steaming purposes is in good supply at $7.65. Hard coal can only be obtained in small quantities at present, but liberal receipts by Lake are expected during May. Consumers who order now are promised deliveries in June and July. A shortage of Pocahontas is expected, especially at the start of the shipping season.

An important readjustment of zone boundaries in Wisconsin has been ordered. It means that Illinois and Indiana coal may be shipped all the year round as far north as a line crossing the state from Kewaunee, on Lake Michigan, through Amherst Junction, Abbotsford and Chippewa Falls to Minneapolis. Formerly the boundary line extended from Milwaukee through Madison to Prairie du Chien. The interlying district heretofore has had to rely upon coal supplies coming via Lake ports Eastern fields.

Advices from the interior of the state represent that the wood-burning movement is spreading, with the result that coal consumption will be materially reduced in many districts.

Fuel Administrator Fitzgerald has been requested by the Washington office to importune the Wisconsin Railway Commission to grant street-car companies in Wisconsin cities the right to reduce the number of stops in order that fuel may be conserved. It is figured that nearly 10,000 tons of coal can be saved in this manner.

ST. LOUIS

An unusual market, with no Carterville available and a demand far exceeding supply. The market is picking up and looks encouraging on other coals, except steam. Car shortage prevalent and movement slow. Domestic business extraordinarily good. No Eastern or Arkansas coals.

The situation locally is more than satisfactory from the viewpoint of the retailer, except that not more than one-half the supply of Carterville coal is available for the demand. The domestic orders on Carterville have piled up so that there is two months' business ahead of the retailers at the present time, and the demand continues. The call for Mt. Olive is fairly good, with that for Standard rather weak as yet.

The call for steam coal is exceptionally slow, with the result that the steam sizes are dragging. Some mines have had to suspend operations on account of their inability to move the screenings.

There are indications, however, that there will be immediate improvement; and this is on account of railroad coal coming in. This will take mine-run and will eliminate the making of domestic sizes.

Conditions in the Carterville field are not good. The car supply is unusually poor and the movement of coal is slow. The slow movement prevents a rapid return of empties, and this is going to be a great factor in the efforts to make a big production this year. It will be the failure of the railroads to properly handle this tonnage.

Apparently, from the layman's point of view, no special efforts are being made by most of the carriers to expedite the movement of coal. Poor wages and inefficient help among the unorganized employees are perhaps the principal factors in this failure.

Somewhat similar conditions prevail in the Duquoin field, with a ready market for everything produced. This also describes the situation in the Mt. Olive field, with the exception that at these mines there were several hundred cars of screenings unbilled that caused a let-up in the tonnage on account of the tracks being congested with unbilled cars. There is a ready market for all the domestic sizes, but steam coal hangs heavily, with no place to put it.

In all of these fields the domestic sizes are bringing the full circular price.

In the Standard field there is a peculiar situation. Screenings have gone as low as $1.40 and lump coal as low as $2.15, for apparently no other reason than that the operators are not making a concentrated effort to produce and market their coal systematically. Even with the restricted zone the proper distribution would prevent a congestion of coal in some sections and a scarcity in others. The pooling methods in use in the East might be used to advantage in the handling of Standard coal here, for the reason that big users play against the market and force some mines to remain idle while they are beating the price down, whereas the maximum tonnage should be produced and a place found for it.

There is a scarcity of cars on the Missouri & Ohio and Illinois Central, and on the Illinois Central the movement is exceptionally poor. The other roads have a fairly good supply of equipment and the movement is almost normal.

Many mines in the Standard field have been idle on account of their failure to move screenings. During the past week something like 2000 cars of mine-run have been sold to railroads at prices ranging from $1.90 to $2.15. Many railroads are still in the market for coal, but feel that they can buy it at a lower price than the operators are now asking, for some operators are asking the full mine-run price, contending that if they do not get it they are going to market their coal for domestic and steam. The conditions in this field are going to be better, and good improvement is in prospect for the next week or ten days.

There is no anthracite coming in from the East, no smokeless, and practically nothing from the Arkansas district.

The circular here is, per net ton f.o.b. mines:

	Williamson and Franklin County	Mt. Olive and Staunton	Standard
6-in. lump	$2.65@3.00	$2.65@2.80	$2.65@2.80
3x6-in. egg	2.65@3.00	2.65@2.80	2.65@2.80
2x3-in. nut	2.65@3.00	2.65@2.80	2.65@2.80
No. 2 nut	2.65@3.00	2.65@2.80	2.65@2.80
No. 3 nut	2.65@3.00	2.65@2.80	2.65@2.80
No. 4 nut	2.65@3.00	2.65@2.80	2.65@2.80
No. 5 nut	2.15@2.40	2.15@2.40	2.15@2.40
2-in. scrgs	2.15@2.40	2.15@2.40	2.15@2.40
2-in. lump	.....	.....	2.25@2.50
3-in. lump	.....	2.50@2.65	.....
Steam egg	.....	2.35@2.50	2.25@2.40
Mine run	2.45@2.60	2.45@2.60	2.45@2.60
Washed:			
No. 1	2.65@3.00	2.65@3.00	2.65@3.00
No. 2	2.65@3.00	2.65@3.00	2.65@3.00
No. 3	2.65@3.00	2.65@3.00	2.65@3.00
No. 4	2.65@3.00	2.65@3.00	2.65@3.00
No. 5	2.15@2.30	2.15@2.30	2.15@2.30

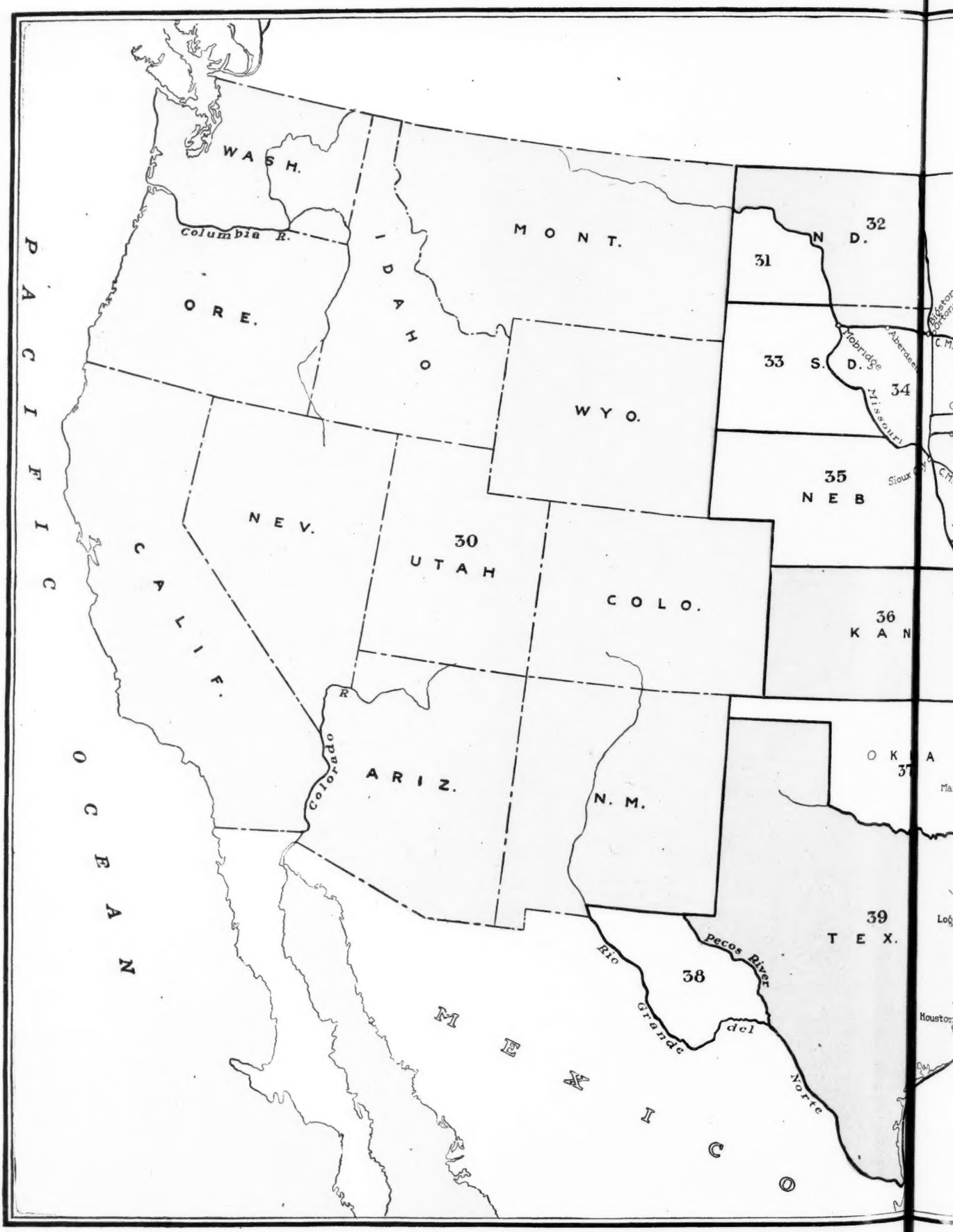
Williamson and Franklin County rate is 87½c.; other fields, 72½c.

General Statistics

NORFOLK & WESTERN

Below is given a statement of the coal tonnage from mines on the Norfolk & Western Ry., and from other railroads, for the month of March, 1918:

From:	Net Tons
Pocahontas field	1,437,933
Tug River field	306,743
Thacker field	268,007
Kenova field	98,665
Clinch Valley field	148,463
Other Northern and Western fields	11,169
Total Northern and Western fields	2,270,980
Williamson & Pond Creek R.R.	180,044
Tug River & Kentucky R.R.	52,363
All other railroads	99,118
Grand total	2,602,505



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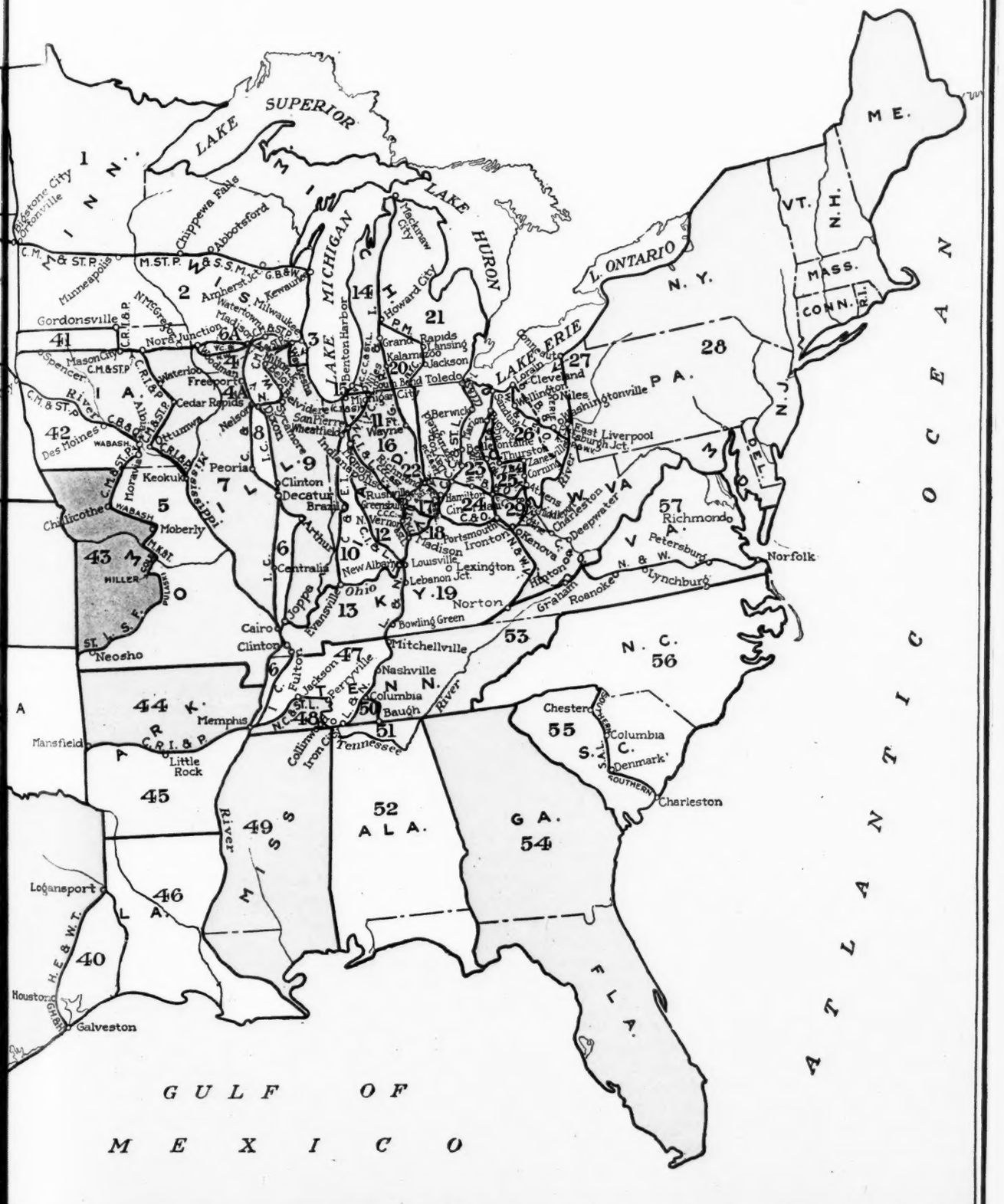
Map Showing Districts in Which Co Fro


LAKE SUPERIOR
LAKE MICHIGAN
LAKE HURON
LAKE ERIE
L. ONTARIO
ATLANTIC OCEAN
GULF OF MEXICO
ME.
VT.
N.H.
MASS.
CONN.
R.I.
N. Y.
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OHIO
IND.
ILL.
MICH.
IOWA
MINN.
Duluth
Superior
Ashland
Bessemer
Ironwood
Chippewa Falls
Abbotsford
Minneapolis
Milwaukee
Kewaunee
Manitowoc
Benton Harbor
Muskegon
Howard City
Grand Rapids
Kalamazoo
Lansing
Jackson
Toledo
Cleveland
Akron
Youngstown
Pittsburgh
Wheeling
Gordonsville
Nora Junction
Mason City
Waterloo
Freeport
Cedar Rapids
Ottumwa
Des Moines
Keokuk
Peoria
Clinton
Decatur
Springfield
Chillicothe
Moberly
Centralia
Cairo
Neosho
Memphis
Mansfield
Little Rock
Logansport
Houston
Galveston
Mitchellville
Nashville
Columbia
Baugh
Tennessee
Bowling Green
Louisville
Lexington
Cincinnati
Portsmouth
Ironton
Kenova
Charleston
Deepwater
Richmond
Petersburg
Norfolk
Lynchburg
Roanoke
Graham
Norton
Columbia
Denmark
Chester
Charleston
Liverpool
Wellsville
Steubenville
Washingtonville
Niles
Lorain
Sandusky
Orrville
Akron
Berwick
Thurston
Corning
Hamilton
Rushville
Greensburg
Vernon
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Terre Haute
Indianapolis
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Fort Wayne
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Danville
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Jacksonville
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East St. Louis
Belleville
Mt. Vernon
Carbondale
Harrisburg
Marion
Herrin
Du Quoin
Pinckneyville
Sparta
Chester
Columbia
Denmark
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